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Safford Field Office
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Environmental Assessment
DOI-BLM-AZ-G010-2013-0021

Lone Star Permit Renewal



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1.0 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental consequences of the proposed grazing permit renewal for the Lone Star Allotment #46130 (Map 1). The action culminates an evaluation conducted on the allotment under the Arizona Bureau of Land Management (BLM) *Standards for Rangeland Health and Guidelines for Grazing Management* (S&Gs). In addition, this EA determines if current grazing management practices would maintain desirable conditions and continue to allow improvement of public land resources, or whether changes in grazing management for the allotments are necessary. This EA is intended to evaluate the findings of the S&G evaluations as they relate to vegetation conditions and resource values in the allotments. This is done in an effort to balance demands placed on the resources by various authorized uses within the allotments. It was determined by the Interdisciplinary Assessment Team (IAT), during the assessment process, that resource conditions on the Lone Star Allotment are either meeting Standards or making significant progress toward meeting the applicable Standards for Rangeland Health. This EA is intended to be used with the Lone Star Allotment Evaluation & Rangeland Health Analysis (Appendix 1).

1.1 Background

The Lone Star Allotment #46130 has not been previously evaluated through the Standards and Guideline process. On 12/02/2004, the Lone Star permit was issued under the Appropriations Act with the following language: “In accordance with Sec. 325, Title III, H.R. 2691, Department of the Interior and related agencies Appropriations Act, 2004 (P.L. 108-108), which was enacted on November 10, 2003, this grazing permit is renewed under Section 402 of the Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1752), Title III of the Bankhead-Jones Farm Tenant Act (7 U.S.C. 1010 ET SEQ.), or, if applicable, Section 510 of the California Desert Protection Act (16 U.S.C. 410AAA-50). In accordance with Public Law 108-108,” the terms and conditions contained in the expired or transferred permit shall continue in effect under the renewed permit until such time as the Secretary of the Interior completes processing of this permit in compliance with all applicable laws and regulations, at which time this permit or lease may be cancelled, suspended, modified, in whole or part, to meet the requirements of such applicable laws and regulations.”

On August 23, 2012, a proposed decision to renew the Lone Star permit based on a previous Environmental Assessment was protested. As a result of that protest, additional review of the proposed management was completed.

1.2 Purpose and Need

The purpose of this action is to provide for livestock grazing opportunities on public lands where consistent with meeting management objectives, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management.

The need for this action is established by the Taylor Grazing Act (TGA), the Federal Land Policy and Management Act (FLPMA), and the Upper Gila-San Simon Grazing Environmental Impact Statement (BLM 1978) decisions were carried forward into the Safford Resource Management Plan (RMP) (1991) and the Statewide Land Use Plan Amendment for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997) which require that the BLM respond to applications to fully process and renew permits to graze livestock on public land. In detail, the analysis of the actions identified in the applications for grazing permit renewals and the alternative actions is needed because:

- BLM Arizona adopted the Arizona Standards for Rangeland Health (Land Health Standards) and Guidelines for Livestock Grazing Management in all Land Use Plans (Arizona S&Gs) in 1997 (Appendix A). Land Health Standards and Guidelines for Grazing Administration was also amended into the Safford RMP. Land Health Standards for Rangelands should be achieving or making significant progress towards achieving the standards and to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Guidelines direct the selection of grazing management practices and, where appropriate, livestock facilities to promote significant progress toward, or the attainment and maintenance of, the standards. This EA is intended to be used with the Final Lone Star Allotment Evaluation & Rangeland Health Analysis.
- The SFO RMP identifies resource management objectives and management actions that establish guidance for managing a broad spectrum of land uses and allocations for public lands in the Safford Field Office. The SFO RMP allocated public lands within the Lone Star Allotment, as available for domestic livestock grazing. Where consistent with the goals and objectives of the RMP and Land Health Standards, allocation of forage for livestock use and the issuance of grazing permits to qualified applicants are provided for by the Taylor Grazing Act (TGA) and the Federal Land Policy and Management Act (FLPMA).

1.3 Decision To Be Made

The Safford Field Manager is the authorized officer responsible for the decisions regarding management of public lands within this allotment. Based on the results of the NEPA analysis, the authorized officer will issue a determination of the significance of the environmental effects and whether an environmental impact statement (EIS) would be required. If the authorized

officer determines that it is not necessary to prepare an EIS, the EA will provide information for the authorized officer to make an informed decision whether to renew, renew with modifications, or not renew the permit and if renewed, which management actions, mitigation measures, and monitoring requirements will be prescribed for the Lone Star allotment to ensure management objectives and Arizona Standards for Rangeland Health are achieved.

1.4 Conformance with Land Use Plan

The proposed action is in conformance with the Safford Resource Management Plan (RMP) (1991) and the Statewide Land Use Plan Amendment for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration 1997. Arizona's Standards and Guides were developed through a collaborative process involving the Arizona Resource Advisory Council and the Bureau of Land Management State Standards and Guidelines team. The Secretary of the Interior approved the Standards and Guidelines in April 1997. The Decision Record, signed by the BLM Arizona State Director (April 1997) provided for full implementation of the Standards and Guides in all Arizona BLM Land Use Plans.

Implementation level decisions from the Upper Gila-San Simon Grazing Environmental Impact Statement (UG-EIS) (BLM 1978) were carried forward into the RMP. Through the above authorizing documents, BLM will continue to issue grazing permits and licenses, implement, monitor and modify allotment management plans and increase or decrease grazing authorizations as determined through the allotment evaluation processes. As necessary, National Environmental Policy Act compliance documents will be prepared prior to any action being implemented. The grazing decisions are incorporated into this Resource Management Plan/Environmental Impact Statement by reference and are common to all alternatives. Management direction pertaining to grazing for this allotment can be found in the Upper Gila-San Simon Grazing Environmental Impact Statement (BLM 1978), Appendix C, p. A-27. All other discipline management objectives pertaining to this allotment can be found in the RMP.

1.4.1 RMP Decision Number and Narrative

CL19 Cultural resources stipulations will be included on all grazing leases and permits. UG-EIS page 4-2.

GM12 The general objective of the proposed action is to permit livestock to use the harvestable surplus of palatable vegetation—a renewable resource—and thereby produce a usable food product. The proposed livestock management program is based on the multiple-use management concept, which provides for the demands of various resource uses and minimizes the conflicts among those uses or activities. Although the various uses of the rangeland resources can be compatible, competition among uses requires constraints and mitigating measures to realize multiple-use resource management goals. The Specific objectives for each grazing unit are shown in appendix C. UG-EIS Page 1-6.

GM17 Deviation from the management system could be allowed for circumstances beyond the licensee's control, such as severe drought, but such deviations would require the District Manager's prior authorization. UG-EIS, Pages 1-8.

GM32 Proper stocking is an essential principle of range management, which should precede or coincide with the initiation of any grazing management system. With stocking rates in balance with the proposed grazing capacities, utilization of key forage species in the key areas would average about 40 percent over a period of years. At a given stocking rate during years of high forage production (e.g. above normal rainfall) utilization in the use pasture might be as low as 20 percent. During years of low forage production utilization could be as high as 60 percent. UG-EIS Page 1-9.

VM02 Upland vegetation on public lands within the Safford District will be managed for watershed protection, livestock use, reduction of non-point source pollution, Threatened and Endangered species protection, priority wildlife habitat, firewood and other incidental human uses. Best management practices and vegetation manipulation will be used to achieve desired plant community management objectives. Treatments may include various mechanical, chemical and prescribed fire methods. RMP page 24 & 45. UG-EIS Partial ROD I page 10.

VM03 Ecological Site Inventories will be combined with the desired plant community concept to develop management objectives for activity plans as they are written or revised. RMP page 45.

VM04 Public lands will be managed to preserve and enhance the occurrences of special status species and to achieve the eventual delisting of threatened and endangered species. RMP page 45.

VM07 Land treatments (vegetation manipulation) will be used to decrease invading woody plants and increase grasses and forbs for; wildlife and livestock forage and watershed condition. Treatment areas will be identified in activity plans. Treatments may include various artificial (mechanical, chemical, or prescribed fire) methods. RMP page 45.

WF02 District management will focus on priority species and their associated habitats to maintain or enhance population levels. Threatened and endangered, proposed, candidate, State-listed and other special status species will be managed to enhance or maintain district population levels or in accordance with established inter/intra-agency management plans. District management efforts will be directed towards the enhancement of biological diversity. UG-EIS ROD Part I page 6.

WF14 Manage habitat for optimum wildlife populations, based on ecological conditions, taking into consideration local, yearly climatic variations. BLM will follow Arizona Game and Fish Department's five-year strategic plans for the various species and will assist the Department in accomplishing its goals for the various species. RMP page 34.

1/ RMP - Safford District Resource Management Plan

2/ UG-EIS - Upper Gila - San Simon Grazing Environmental Statement

1.5 Relationship to Other Plans, Statutes, and Regulations

Grazing permit renewals are provided for in 43 CFR 4100 where the objectives of the regulations are “...to promote healthy, sustainable rangeland ecosystems; to accelerate restoration and improvement of public rangelands to properly functioning conditions; to promote the orderly use, improvement and development of the public lands; to establish efficient and effective administration of grazing of public rangelands; and to provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands” (43 CFR 4100.0-2). The proposed action would comply with 43 CFR 4100.0-8 which states, in part, “The authorized officer shall manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans.” The proposed action also complies with 43 CFR 4130.2(a) which states, in part, “Grazing permits or leases shall be issued to qualified applicants to authorize use on the public lands and other lands under the administration of the Bureau of Land Management that are designated as available for livestock grazing through land use plans”. The proposed action is consistent with the Fundamentals of Rangeland Health (43 CFR 4180.1) and Arizona’s Standards and Guidelines, which were developed through a collaborative process involving the Arizona Resource Advisory Council and the BLM State Standards and Guidelines team. The Secretary of the Interior approved the Standards and Guidelines in April 1997. These standards and guidelines address watersheds, ecological condition, water quality, and habitat for special status species. These resources are addressed later in this document. The proposed action conforms to the President’s National Energy Policy and would not have adverse energy impacts. The proposed action would not deny energy projects, withdraw lands, close roads, or in any other way deny or limit access to mineral materials to support energy actions. The regulations at 43 CFR Part 10 specifically require land use authorizations, including leases and permits, to include a requirement for the holder of the authorization to notify the appropriate Federal official immediately upon the discovery of human remains and other items covered by the Native American Graves Protection and Repatriation Act (see 43 CFR 10.4(g); the actual requirement for persons to notify the Federal agency official and protect the discovery is in 43 CFR 10.4(b) and (c). Executive Order 13186 requires the BLM and other Federal agencies to work with the USFWS to provide protection for migratory birds. Implementation of the proposed action is not likely to adversely affect any species of migratory bird known or suspected to occur on the allotments.

The proposed action would comply with the following laws and/or agency regulations, and are consistent with applicable Federal, state and local laws, regulations, and plans to the maximum extent possible.

- Taylor Grazing Act (TGA) of 1934
- Federal Land Policy and Management Act (FLPMA) of 1976 (43 U.S.C. 1701 et seq.)
- Public Rangelands Improvement Act (PRIA) of 1978
- Endangered Species Act (ESA) of 1973, as amended
- 43 CFR 4100 Grazing Administration - Exclusive of Alaska
- Arizona Water Quality Standards, Revised Statute Title 49, Chapter II
- Section 106 of the National Historic Preservation Act of 1966, as amended

- Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013; 104 Stat. 3048-3058)
- National Environmental Policy Act (NEPA) of 1969
- Executive Order 13186 – *Responsibilities of Federal Agencies to Protect Migratory Birds*

1.6 Scoping

Scope of Issues: The CEQ defines scoping as “...an early and open process for determining the scope of issues to be addressed and for identifying significant issues related to a proposed action” (40 CFR 1501.7). Scoping is an important underpinning of the NEPA process that encourages public input and helps focus the environmental impact analysis on relevant issues. Issues were identified by Safford Field Office Interdisciplinary Team, the grazing permittee, and interested publics. Distribution of scoping information typically heralds the beginning of the public component of the NEPA process. To encourage public participation, BLM mailed scoping information regarding the Lone Star permit renewal proposal to interested individuals, organizations, and agencies on June 12, 2012.

Key Issues: Several environmental issues concerning the proposed project were identified by the NEPA interdisciplinary team members and from the public comments during scoping.

1.6.1 **Issues Identified:**

- Would there be potential impacts to terrestrial wildlife species?
- What are the effects of seasonal grazing use?
- What are the impacts from grazing on resources?
- Would there be protection of archaeological sites on the allotment?
- What are the impacts from grazing on soils?
- Would there be potential impacts to special status species?

2.0 Proposed Action and the Alternatives

2.1 Design Features Common to the Proposed Action and the No Action Alternative

Annual Meetings: When large changes are identified in monitoring data, an annual meeting between BLM and the grazing permittee would be conducted when necessary to discuss previous years monitoring and the coming year’s grazing schedule. Emergency situations would be handled on a case by case basis and would involve consultation with the above parties. The final decisions concerning the annual meeting recommendations and moves outside the scheduled use periods would be made by the authorized officer.

Flexibility: Due to the annual variability in forage production, resulting from yearly variability in climate, it may be necessary to move livestock earlier or later than shown on the planned grazing rotation schedule. The rancher would contact the BLM prior to making moves outside of the schedule and would keep records of when livestock were actually moved, and provide actual use information to the BLM each year. This grazing schedule is a template and pasture rest,

deferment, and rotation schedule is subject to change year to year as mentioned above, based on climatic conditions as well as monitoring data from each year. When drought is declared by the authorized officer, permittees are contacted and educated on consequences of drought on forage production. The permittee is also reminded of the upper limit of utilization. Permittees are: 1.) encouraged to voluntarily reduce numbers 2.) if drought continues, permittees can be required to remove all cattle under a voluntary agreement or full force and effect decision 3.) if necessary, livestock can be spread throughout the allotment in order to avoid over utilization of forage species. All decisions should be made after monitoring studies are performed.

Lone Star Allotment: The Lone Star Allotment has not been previously evaluated through the Standards and Guideline process. On 12/30/2005, the Lone Star permit was issued under the Appropriations Act with the following language: “In accordance with Sec. 325, Title III, H.R. 2691, Department of the Interior and related agencies Appropriations Act, 2004 (P.L. 108-108), which was enacted on November 10, 2003, this grazing permit is renewed under Section 402 of the Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1752), Title III of the Bankhead-Jones Farm Tenant Act (7 U.S.C. 1010 ET SEQ.), or, if applicable, Section 510 of the California Desert Protection Act (16 U.S.C. 410AAA-50). In accordance with Public Law 108-108, the terms and conditions contained in the expired or transferred permit shall continue in effect under the renewed permit until such time as the Secretary of the Interior completes processing of this permit in compliance with all applicable laws and regulations, at which time this permit or lease may be cancelled, suspended, modified, in whole or part, to meet the requirements of such applicable laws and regulations.”

2.2 Proposed Action

The proposed action is to renew the grazing permits for the Lone Star allotments for a period of 10 years with the following Terms and Conditions: Keep the current permitted number at 869 AUMs. A grazing rotation system would be implemented with the Solomonville Pasture being used for six months during the non-growing season (Nov-April) and the Deep Well Pasture and Kennecott Pasture being used seasonally as forage is available. Mandatory terms and conditions are listed in Table 1 and other terms and conditions are listed in Table 2 and as bullets below Table 2.

Table 1. Mandatory Terms and Conditions for the Lone Star Allotment.

Allotment	Livestock number	Kind	Grazing Period Begin End	%PL	Type Use	AUMS
46130	127	Cattle	3/1 2/28	57	Active	869

Table 2. Other Terms and Conditions for the Lone Star Allotment.

Allotment	Pasture	Livestock number	Kind	Grazing Period Begin End	% PL	Type Use	AUMS
46130	Solomonville	107	Cattle	11/01 4/30	57	Active	363
46130	Deep Well/ Kennecott	145	Cattle	5/1 10/31	57	Active	500

- The permittee is required to submit a report of the actual grazing use made on this allotment for the previous grazing period, March 1 to February 28. Failure to submit such a report by March 15 of the current year may result in suspension or cancellation of the grazing permit.
- In order to improve livestock distribution on the public lands, all salt blocks and/or mineral supplements shall not be placed within a ¼ mile of any riparian area, wet meadow or watering facility (either permanent or temporary) unless stipulated through a written agreement or decision in accordance with 43 CFR 4130.3-2c.
- To protect the cultural and historic values of the Sanchez Civilian Conservation Corps Camp (CCC) and its associated features, all property administered by BLM south of the base of the Gila Mountain Foothills, east of Tidwell Wash and Solomon Pass Road, north of the Gila River, and west of Head Canyon would be managed as though it is a Historic District on the National Register of Historic Places.
- Any new projects involving ground disturbance would have to avoid features associated with the CCC projects of the 1930's.
- Should these features be threatened by an undertaking, archaeological data recovery and monitor would have to be provided, and the SHPO would have to concur with the necessity of the project and its scientific findings.
- If in connection with allotment operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The permittee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.

2.3 No Action Alternative

Under this alternative, the current terms and conditions would be carried forward into the new term grazing permit. This alternative calls for year-round continuous grazing of all pastures and the permitted stocking rate would remain at 869 AUM's

2.4 No Grazing Alternative

This alternative would eliminate livestock grazing from the federal land managed by the BLM on the Lone Star allotment. The permit would be canceled for the Lone Star Allotment. Livestock grazing would not be authorized. BLM would initiate the process in accordance with 43 CFR parts 4100 and amend the RMP.

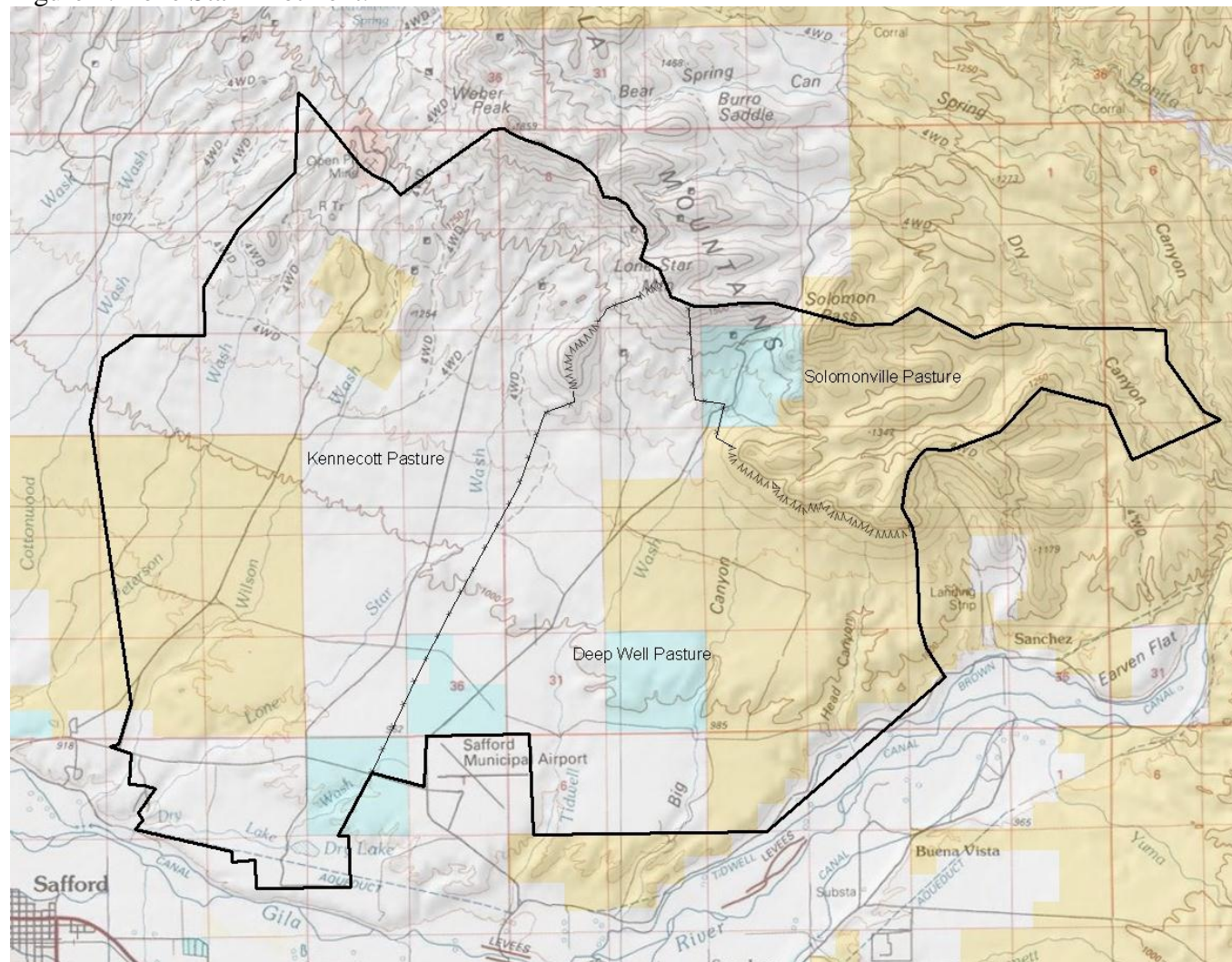
2.5 Alternatives Considered but Eliminated From Detailed Analysis

No other alternatives were identified during scoping that would respond to the purpose and need and could be practically implemented on the Lone Star allotment.

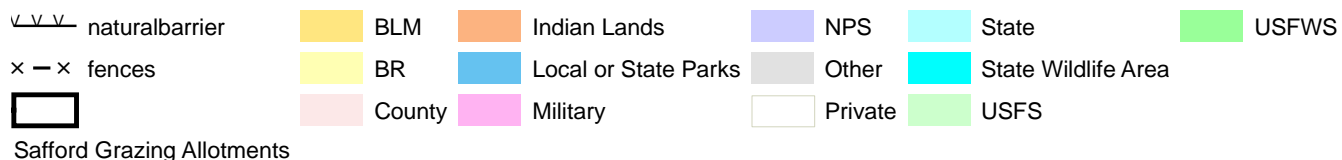
3.0 Affected Environment

The Lone Star Allotment is located 1.5 miles northeast of Safford, next to the Safford Airport. It is bordered on the south by the Gila River and extends northward to the top of the Gila Mountains. Elevations on the allotment rise from 3,000 feet near the river up to 6,100 feet on Weber Peak on the north boundary. The allotment consists of gently sloping river terraces and a narrow band of steep mountainous terrain lies along the north edge. Refer to figure 1 for the location and ownership of the Lone Star Allotment.

Figure 1: Lone Star Allotment.



Lone Star Permit Renewal EA



The BLM is required to consider many authorities when evaluating a Federal action. Those elements of the human environment that are subject to the requirements specified in statutes, regulations, or executive orders, and must be considered in all EAs, have been considered by BLM resource specialists to determine whether they would be potentially affected by the proposed action. These elements are identified in Table 3, along with the rationale for the determination on potential effects. If any element was determined to be potentially impacted, it was carried forward for detailed analysis in this EA; if an element is not present or would not be affected, it was not carried forward for analysis. Table 3 also contains other resources/concerns that have been considered in this EA. As with the elements of the human environment, if these resources were determined to be potentially affected, they were carried forward for detailed analysis in this document.

Table 3. Summary evaluation of elements/resources of the human environment.

Resource	Determination*	Affected Environment (Rationale for Determination)
<p>* NP = Not present in the area that will be impacted by the proposed action. NI = Present, but not affected to a degree that would mean detailed analysis is required. PI = Present with potential for impact; analyzed in detail in the EA.</p>		
Air Quality	NI	The proposed and the alternative action would not measurably impact Air Quality standards. Moving livestock could produce small amounts of fugitive dust in the short term, but this would cause negligible and localized impacts on air quality. The dust from roads and a mining activity cause much more of an impact to area quality than levels associated with the management of livestock
Areas of Critical Environmental Concern	NP	This critical element will not be affected by the proposed action or alternatives because there are not ACECs within or adjacent to the proposed use area.
Cultural Resources	PI	Allotment case files, AMP files, range project files, Water Source Inventory files, and Cultural Resource files were reviewed to determine areas of livestock congregation and whether these areas have been previously inventoried for cultural resources. Because no historic properties were identified in areas of livestock congregation, no mitigation is recommended as a BLM responsibility or as a term or condition of the permit, to protect cultural values identified above.
Environmental Justice	NI	<p>The project area encompasses uninhabited public lands administered by BLM. The closest large community is Safford Arizona one mile south of the allotment; smaller communities of communities of Solomonville and San Jose are within two miles. The allotment with its livestock operation has been continuously operated for over 70 years.</p> <p>Under the proposed action the livestock operation on the Lonestar Allotment would continue but would have little to no impact differences from the other alternatives. This would not impact the local communities, and therefore would not have a disproportionately high adverse health or other environmental impact on low income or minority populations as defined by Executive Order 12898.</p>
Farmlands (Prime or Unique)	NP	This critical element would not be affected by the proposed action or alternatives because there are no Prime Farmland areas within or adjacent to the proposed action area.
Floodplains	NP	The proposed decision or its alternatives does not affect floodplains as defined by the Executive Order 11988 (1977).
Invasive, Non-native Species	NI	Noxious weeds are most likely to occur in disturbed areas such as construction sites, road shoulders, and fallow agricultural fields. The proposed action area is not located in a designated Weed Management Area or areas of known noxious weed populations. Disturbed areas are more susceptible to invasive species than intact native plant communities. Moving livestock onto and off of the allotment may increase the potential of introducing a noxious weed. There is no known invasive or noxious species documented on this allotment. This critical element would not be affected by the proposed action.

Resource	Determination*	Affected Environment (Rationale for Determination)
Threatened, Endangered Plant Species	NP	No Threatened, Endangered, or Candidate plant species occur in the project area.
Threatened, Endangered Animal Species	NI	Endangered species and foraging habitat potentially exist within proposed action area. The BLM considered the FWS county list and determined the effect of the proposed project on each of the species. The BLM determined the action would have no effect on federally-listed species or foraging habitat.
Wastes (hazardous or solid)	NP	This critical element would not be affected by the proposed action or alternatives, there are no know waste sites on the land managed by the BLM on this allotment.
Water Quality and Quantity (drinking/ground)	NP	This critical element would not be affected by the proposed action or alternatives there are no known issues of water quality within the allotment.
Wetlands/Riparian Zones	NP	This critical element would not be affected by the proposed action or alternatives as there are no wetlands or riparian zones in the area. The Gila River is located a half a mile from the allotment.
Wild and Scenic Rivers	NP	There are no Wild and Scenic River segments classified as designated, eligible, or suitable within the project area.
Wilderness	NP	There are no BLM lands designated as wilderness areas within this allotment. This critical element would not affect the proposed action.
Range	PI	Maintenance and operation of the water system would be simplified. The current grazing system and existing range improvements would remain. However, over time the permittee would benefit from reduced operational costs.
BLM Sensitive Plants	NP	No BLM Sensitive Plants resources are known to occur in the project area.
Wildlife (including sensitive species and migratory birds)	PI	Disturbance to wildlife could occur during well drilling activities. The impacts would be short-term and negligible in magnitude, as construction activities would displace wildlife within the immediate area.
Soils	PI	Some soil disturbance occurs in relation to grazing activities. This issue is therefore analyzed in detail later in this EA.
Recreation	NI	There are no developed recreation facilities in the allotment; however, dispersed recreation does occur. Dispersed recreation primarily involves small game hunting, target shooting and off-highway vehicle (OHV) operation. Due to the proximity to Safford areas next to the main road through the allotment have occasional dump sites. The amount of recreation activities do not affect the proposed action or the alternatives.
Visual Resources	NI	<p>The Lone Star allotment is located within VRM Class III and IV designated areas. The objective of Class III is to partially retain the existing character of the landscape. The level of activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The areas in the VRM Class III class are the Hwy 70 corridor and Gila Mountains.</p> <p>The objective of Class IV is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. Every attempt should be made, however, to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements.</p>
Socioeconomic Values	NI	<p>The project area encompasses uninhabited public lands administered by BLM. The closest large community is Safford Arizona one mile south of the allotment; smaller communities of Solomonville and San Jose are within two miles. The social and economic basis of the nearby communities is primarily mining and farming. The importance of ranching to these communities has decreased over time but still contributes.</p> <p>The minor contributions of the allotment to the local communities would continue with implementation of the proposed action, but only to a very small degree and would only be slightly different if the alternatives would be selected. There would be no socioeconomic impacts to local communities from the implementation of this alternative.</p>

Resource	Determination*	Affected Environment (Rationale for Determination)
Wilderness Characteristics	NP	Portions of the Lone Star allotment are in wilderness character inventory units 4-19 and 4-21. These units were dropped from further review per the "Arizona Initial Inventory of Public Lands Administered by Bureau of Land Management Decision Report September 1979." They still do not meet the size requirements for wilderness characteristics.

3.1 Resources Brought Forward for Analysis

3.1.1 Cultural

Issuance of the permit constitutes a Federal Undertaking under Section 106 of the National Historic Preservation Act (NHPA). The Area of Potential Effect (APE) has been determined to be the public lands within the grazing allotment.

In compliance with the BLM Cultural Resources Programmatic Agreement, the Arizona BLM-SHPO Protocol, the 1980 Programmatic Memorandum of Agreement between the BLM, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Livestock Grazing and Range Improvement Program, and the BLM 8100 Manual series, the following actions have been taken to identify cultural resources located in the APE, evaluate the eligibility of cultural resources for listing in the National Register of Historic Places (NRHP), determine the effect of the undertaking on eligible cultural resources, and design mitigation measures or alternatives where appropriate.

The State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and Indian tribes having historical ties to Arizona public lands were consulted during the preparations of the Upper Gila/San Simon Grazing Environmental Impact Statement (9/78) and the Safford Resource Management Plan (9/91). Indian tribes were consulted at the beginning of the permit renewal process.

3.1.2 Wildlife

The Safford District Resource Management Plan identified six objectives for BLM priority wildlife species:

1. Maintain and enhance priority species and their habitats.
2. Focus management actions on a single species, only when required by the Endangered Species Act. Actively promote Threatened and Endangered species recovery to achieve eventual delisting.
3. Conserve candidate species to ensure that BLM authorized actions do not contribute to the need to list any species as threatened or endangered.
4. Manage state-listed species to meet state objectives. Other special status species will be managed in accordance with inter and intra-agency management plans.

5. Manage priority wildlife species habitat (vegetation communities) or special features of that habitat (water, riparian vegetation, cliffs, etc.) to maintain or enhance population levels.
6. Focus management efforts on enhancing biological diversity.

Priority species occurring on the Lone Star allotment include Rocky Mountain bighorn sheep, mule deer, and neotropical migratory birds.

3.1.2.1 Special Status Species

A query of the Heritage Database Management System, maintained by the Arizona Game and Fish Department, resulted in the following species being within five miles of the Lone Star allotment, see Table 3.

Table 3. Special Status Species Occurrences and Critical Habitat within five miles of the Lone Star allotment.

NAME	COMMON NAME	FWS	BLM	STATE
<i>Abutilon parishii</i>	Pima Indian Mallow	SC	S	SR
<i>Agosia chrysogaster</i>	Longfin Dace	SC	S	
<i>Aquila chrysaetos</i>	Golden Eagle			
<i>Bat Colony</i>				
<i>Bufo microscaphus</i>	Arizona Toad	SC		
<i>Buteogallus anthracinus</i>	Common Black-hawk			WSC
<i>Catostomus clarki</i>	Desert Sucker	SC	S	
<i>Catostomus insignis</i>	Sonora Sucker	SC	S	
<i>CH for Empidonax traillii extimus</i>	Designated Critical Habitat for southwestern willow flycatcher			
<i>CH for Xyrauchen texanus</i>	Designated Critical Habitat for razorback sucker			
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C		WSC
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE		WSC
<i>Gila intermedia</i>	Gila Chub	LE		WSC
<i>Macrotus californicus</i>	California Leaf-nosed Bat	SC		WSC
<i>Myotis yumanensis</i>	Yuma Myotis	SC		
<i>Poeciliopsis occidentalis</i>	Gila Topminnow	LE		WSC
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC		WSC
<i>Rhinichthys osculus</i>	Speckled Dace	SC	S	

FWS = U.S. Fish and Wildlife Service

BLM = Bureau of Land Management

C = Candidate

T = Threatened

E = Endangered

S = Sensitive

SR = State Restricted

WSC = Wildlife Species of Concern

3.1.3 Range

The lower elevation of this allotment known as the Deep Well and Kennecott pasture, although classified as perennial range its use is managed to occur seasonally when an abundance of annuals are present. The lower elevation of this allotment has little perennial forage because of the soils, rainfall and ecological sites present. The ecological sites in these pastures are a mosaic of limy upland, where perennials are limited in the plant community and loamy upland that supports more perennial grasses at the same rainfall amounts. The permittee uses these pastures only when it receives normal to above normal spring or winter rainfall that produce an abundance of annual forbs and grasses. This grazing scheduled is how the permittee manages the allotment.

3.1.4 Soils

The Lone Star Allotment is in MLRA 41-2 (8-12 inch p.z). The ecological sites occurring on the Lone Star allotment are: Basalt Hills 41-2, Clay Loam Upland 41-2, Loamy Uplands 41-2, and Limy Slopes 41-2. For a complete description of the soils on the Lone Star Allotment refer to Gila-Duncan Area, Parts of Graham and Greenlee Counties, Arizona soil survey (NRCS 1981).

4.0 Environmental Consequences

4.1 Environmental Consequences of the Proposed Action

4.1.1 Cultural Resources

There were no areas of Native American concern, Traditional Cultural Properties (TCP), or Sacred Sites identified during consultations.

As required by the Native American Graves Protection and Repatriation Act regulations at 43 CFR 10.4(g), the following should be added to the grazing lease/permit as a term and condition:

If in connection with allotment operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The permittee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.

* Properties refer to archaeological sites, Traditional Cultural Properties, and Sacred Sites.

Seven historic properties were identified in areas of livestock congregation; while grazing would have no adverse effects on these properties, they are eligible for inclusion on the NRHP.

A Cultural Resource Compliance Documentation Records (Project No. AZ-040-09-021, AZ-040-10-023, AZ-040-11-001) were completed in 2009, 2010, and 2011 by Safford Field Office Archaeologist Daniel L. McGrew.

The proposed action would have “no adverse effects” on surface features or historic properties as none were documented on the allotment during the Cultural Inventory. Impacts to cultural resources from livestock grazing are usually associated with development projects such as fences, salt grounds, watering areas, and loafing areas. It is therefore imperative that each site specific project, prior to ground disturbance have a survey conducted to locate and evaluate sites on a case-by case basis. There is no range projects associated with the proposed action or alternatives.

4.1.2 Wildlife

There are several ephemeral drainages (Head Canyon, Tidwell Wash, Big Canyon, Lone Star Wash, Wilson Wash, and Peterson Wash) which run through the Lone Star Allotment from the Gila Mountains to the Gila River. These drainages may be used as movement corridors for additional wildlife species including mule deer, mountain lion, and black bear.

4.1.2.1 Fisheries

Designated Critical Habitat for the razorback sucker is found along the Gila River, just south of the Lone Star Allotment. There are several ephemeral drainages (i.e., Head Canyon, Big Canyon, Tidwell Wash, Lone Star Wash, Wilson Wash, and Peterson Wash) which run through the Lone Star Allotment from the Gila Mountains. These drainages used to connect directly to the Gila River; however, they are disconnected due to several man-made features including roads, canals, and agricultural fields, which prevent soil sedimentation from upland erosion from entering the Gila River. In addition, the presence of rock and gravel within the allotment also makes the uplands less prone to erosion. There are no anticipated impacts to razorback sucker critical habitat from livestock management on the Lone Star allotment.

Gila chub, Gila topminnow, desert pupfish, speckled dace, Sonora sucker, desert sucker, longfin dace, and lowland leopard frog occur in Bonita Creek, which is located approximately 1.5 miles due east of the eastern border of the Lone Star Allotment. There are no drainages from the Lone Star Allotment into Bonita Creek and therefore there are no anticipated impacts to these species from livestock management on the Lone Star allotment.

4.1.2.2 Special Status Species

The southwestern willow flycatcher (*Empidonax traillii extimus*) was listed as federally endangered on February 27, 1995 (Vol. 60, No. 38, 10693-10715). It is a riparian obligate species. They prefer dense canopy cover, a large volume of foliage, and surface water during midsummer. They appear to avoid riparian areas found in steep, closed canyons. The flycatcher is very threatened throughout its range due to riparian habitat loss and fragmentation and brood-parasitism by the brown-headed cowbird. Other factors include diversion of water, draining of wetlands, channelization and levying of streambeds, construction of canals, drains and

impoundments, livestock grazing, off-road vehicles, and the cutting of woodlands. Another possible threat is the invasion of riparian habitats by exotic tamarisk (AGFD 2002). Critical habitat is within approximately 0.5 miles of the Lone Star allotment, and cattle congregation areas can have the potential to increase brown-headed cowbird populations which could negatively affect southwestern willow flycatcher nest success, due to brood parasitism. There are five dirt tanks, within three miles of southwestern willow flycatcher critical habitat, which hold water ephemerally. As stated in the 2012, Programmatic Biological Opinion for the Safford and Tucson Field Offices' Livestock Grazing Program, Southeastern Arizona, 22410-2006-F-0414:

To reduce the likelihood of nest abandonment and loss of flycatcher productivity owing to cowbird parasitism associated with BLM-authorized grazing activities in or near occupied habitats, BLM would implement the following:

Investigate, identify, and assess livestock concentration areas on BLM in the action areas that are likely foraging areas for cowbirds. This would be done within a five-mile radius of occupied or un-surveyed suitable southwestern willow flycatcher habitat. The BLM would evaluate ways to reduce any concentration areas found. The BLM would pay special attention to those facilities within two miles of breeding habitat, since this is the range in which alteration of concentration areas are most effective.

The BLM is currently developing a plan to evaluate livestock concentration areas on BLM lands which may negatively affect southwest willow flycatcher and, if any are identified, would work with the US Fish and Wildlife Service to discuss possible management actions to reduce affects.

There is no habitat for the western yellow-billed cuckoo on the Lone Star allotment, potential habitat exists on private lands along the Gila River, approximately 0.5 miles from the allotment. Brown-headed cowbirds are known to parasitize yellow-billed cuckoo nests. Monitoring and, if needed, management actions to reduce effects of brown-headed cowbirds would also benefit yellow-billed cuckoo.

The Yuma myotis roosts in buildings, under bridges, and in caves and mines. The California leaf-nosed bat roosts in abandoned mines and rock shelters during the day and would roost at night in open buildings, bridges, and mines. Grazing is not likely to impact these species. Recreationists entering roosts, especially maternity roosts, have the potential to negatively impact these species.

The Pima Indian mallow is found in mesic situations in full sunlight within higher elevation Sonoran desert-scrub on rocky hillsides, cliff bases, canyon bottoms, lower side slopes, and ledges of canyons among rocks and boulders. Slopes can exceed 45 degrees. In riparian zones, they occur on flat secondary terraces but typically not in canyon bottoms. They are often found near trails, probably due to their influence on the light, heat, and water of the micro-habitat. They like rocky substrate and lots of grasses and can be found higher on bajadas or lower in washes. Threats include: mining and related activities; trampling from recreators wandering off trails; livestock trampling and degradation due to overuse; and introduced species such as buffelgrass and thornberry (AZGF 2000). Given the low elevation of the Lone Star Allotment

and limited potential mesic habitats, potential for Pima Indian mallow to occur would be limited to a few steep sloped areas along drainages which would generally be too steep for livestock to be present on (Rice and Blackwell, 20012). The BLM does not have any record of Pima Indian mallow occurring within the Lone Star Allotment, but this may be a reflection of limited surveys.

The golden eagle is susceptible to disturbance during the nesting period (February through April). The Golden Eagle's territory size in several areas of the western U.S. averaged 22-55 sq miles (57-142 sq. km). They nest on rock ledges, cliffs or in large trees and may have several alternate nests and they may use the same nests in consecutive years or shift to alternate nest used in different years. In Arizona they are found in mountainous areas and are virtually vacant after breeding in some desert areas (Arizona Game and Fish Department, Heritage Database Management System). There are no known nesting areas within the Lone Star Allotment, but there may be suitable areas near Bonita Creek and the Gila River which would not be affected by activities on the Lone Star allotment.

An obligate riparian nester, the common black-hawk is dependent on mature, relatively undisturbed habitat supported by a permanent flowing stream. The greatest threat to the common black-hawk is alteration and elimination of riparian habitat through clearing, water diversion, damming, and lowering of the water table by underground pumping. At least 95% of the riparian habitat in the southwestern United States have been lost, altered, or degraded. They are vulnerable to disturbance and contamination of riparian prey species (AZGFD, 2005). The Lone Star Allotment does not support any riparian habitat and activities on the allotment would not affect common black-hawk.

The Arizona toad inhabits rocky streams and requirements. Adults are nocturnal except during the breeding season which is from February through July and sometimes up until September. Arizona toads have been recorded in Bonita Creek, approximately 1.5 miles east of the Lone Star Allotment and have the potential to be along the Gila River, just south of the Lone Star Allotment (AGFD 2002). There is no known habitat on the Lone Star Allotment itself and there would be no impacts to the Arizona toad on the Lone Star allotment.

The known bat colony in the area is on an adjacent allotment and would not be affected by normal grazing activities on the Lone Star Allotment.

4.1.3 Range

The proposed action suggested grazing schedule would allow for a better use of the different ecological sites. By using the lower elevation pastures only when it receives winter or spring rain and produces abundance of annual plants. The proposed action would maintain the current level of livestock grazing authorized but a change in season on the portion of the allotment that BLM has the most control over. With the amount of mixed ownership of the low pastures we would are not too able to control the grazing use exclusively, instead we have coordinate with the permittee to use this area seasonally. The upper pasture would receive growing season rest to aide in plant health and vigor. The rotation system can continue to progress towards meeting the Arizona Standards and Guidelines for Rangeland Health. This would provide some degree of stability for the permittee's livestock operation. Permit renewal would also meet the goals of the Upper Gila-San Simon Grazing Environmental Impact Statement for an additional ten years.

4.1.4 Soils

All of the soils found on this allotment are classified as arid and semiarid. Soils within this area are meeting standards when indicators were evaluated by the interdisciplinary team. Rotational grazing practices would therefore not be expected to adversely impact soil resources within the allotments.

4.2 Environmental Consequences of No Action Alternative

These critical elements were only carried forward for detailed analyzing if different from the impacts of the proposed action.

4.2.2 Wildlife

Impacts of the No Action Alternative would be the same as those mentioned under the proposed action. General watershed and habitat conditions may improve incrementally over time.

4.2.4 Range

General range and vegetation conditions may decline or become static with areas not being rested or rotated through areas with the most amount of feed would be used constantly by livestock. This management could lead to standard and guidelines to not be met.

4.2.5 Soils

Improper grazing practices may lead to soil compaction, reduced infiltration rates, increased runoff and erosion, and declines in watershed condition. Although soils within the allotment are currently stable frequent use by livestock can cause trends to decline.

4.3 Environmental Consequences of No Grazing Alternative

These critical elements were only carried forward for detailed analyzing if different from the impacts of the proposed action.

4.3.1 Cultural Resources

The No Grazing Alternative could have a positive or a negative effect on cultural resource values. By eliminating grazing as a source of adverse impacts from livestock grazing, trampling, and loafing potential archaeological sites would be less likely to suffer from impacts from cattle on the site. Conversely, lack of grazing could adversely impact potential cultural sites by increasing fuel loading which in the event of wildfire could be harmful to cultural sites as well as other resources.

4.3.2 Wildlife

Impacts of the No Grazing Alternative would be the same as those mentioned under the proposed action. General watershed and habitat conditions may improve incrementally over time.

4.3.3 Range

In order to prevent cattle from grazing on public land 15 miles of fence would have to be constructed to separate federal land from surrounding private property. Range improvements such as fences would not be maintained and trespass livestock from adjacent allotments would likely increase. Watering facilities on the allotment that provide water for livestock and wildlife would not be maintained without an active permittee. Without livestock grazing there would be an increase in standing vegetation in the higher elevation areas in the allotment. The low country portion would be expected to have annuals increase seasonally with heavy rain events and then die off between rain events. Watering facilities on the allotment that provide water for livestock and wildlife would be assessed to determine whether or not they would be maintained without an active

4.3.4 Soils

The rangeland health assessments conducted on this allotment did not indicate excessive erosion patterns or instability due to livestock grazing. Soil quality and health should therefore remain stable or improve slightly through implementation of this alternative.

4.4 Cumulative Impacts

“Cumulative impacts” are those impacts resulting from the incremental effect of an action when added to other past, present, or reasonably foreseeable actions regardless of what agency or person undertakes such other actions (40 CFR § 180.7).

Life of the proposed action is ten years; this time frame is considered to be most appropriate for considering the incremental effect of actions in the foreseeable future. Many of the past and present actions discussed are expected to persist through this time frame, though the relative intensity of these actions could vary.

The following critical elements, ACEC's, Floodplains, Wastes, Invasive and Nonnative Species, Cultural Resources, Native American Religious Concerns, Prime Farmland, VRM, Water Quality, Wetlands and Riparian Zones, Wild and Scenic Rivers, Wilderness Characteristics, and T&E Fish/Fisheries would have no cumulative impacts from the proposed action or alternatives as they are not found within or adjacent to the Lone Star allotment or the visual class is not impacted by the proposed action or alternatives.

4.5 Past, Present and Reasonably Foreseeable Future Activities

Range: During the latter part of the 1800's, Anglo Americans brought large numbers of cattle into the area as a result of the market provided by Army Forts and Indian Reservations. During this time, overstocking was the norm as cattle were sold on a per head basis. At the turn of the

century, large herds of livestock grazed on unreserved public domain in uncontrolled open range. Eventually, the range was stocked beyond its capacity, causing changes in plant, soil, and water relationships. Some speculate that the changes were permanent and irreversible, turning plant communities from grass and herbaceous species to brush and trees. Protective vegetative cover was reduced, and more runoff brought erosion, rills, and gullies.

From 1905 to the 1930's, ranches in the area were stocked with mixed herds of goats and cattle. A second major drought occurred in this period. And although a gradual shift from sale by the head to sale by the pound was occurring and cattle numbers were decreasing, the use of cattle and goats utilized all available food niches. As a result of the past drought, there were increased water developments during this period as well as land cultivation for alternative feed sources for livestock.

In response to overgrazing across the Western United States range reform began with the passing of The Taylor Grazing act in 1934 initiated "modern" grazing and marked the end of the open range era. Ranch boundaries were fenced, and subsidies were implemented for range improvements, such as pasture fences and water developments. During the 1933-1934 drought, the first drought take-offs were practiced to remove drought stricken cattle from overstocked rangelands.

There is also a long standing history of grazing on this allotment and other allotments in the area. Given the past experiences with livestock impacts on public land resources, as well as the cumulative impacts that could occur on the larger ecosystem from grazing on various public and private lands in the region, management of livestock grazing is an important factor in ensuring the protection of public land resources.

Mining: There is some evidence of historical mining in the area with a few old mine shafts. Currently there is heavy mining activity largely based in the Kenecott Pasture where Freeport McMoran has an open pit copper mine. Most of the private property located within the allotment is owned by the mine and has an effect on the livestock operation; at times the permittee is not permitted to have cattle out on the allotment.

Recreation/Hunting: Recreational activities include hunting, horseback riding, primitive camping, wildlife viewing and off-highway vehicle driving currently occurs and are anticipated to continue. This area receives moderate to heavy use because of its close proximity to town. It is used as a dumping ground on occasion because it's close to town. These activities are expected to increase with a growing population with the urban areas.

Utilities: There is a power line that goes through the allotment and has multiple roads associated with the maintenance for these lines. There is also a sub-station located on the allotment. The current level of activity associated with these structures is expected to continue into the foreseeable future.

Wildlife: Many activities without a Federal nexus occur and are expected to continue to occur in the watershed. Ranching activities occur in the surrounding uplands, on private, federal, and state lands. Mining activities within the allotment are expanding which eliminate habitat and

disturb wildlife in the area. Groundwater pumping, surface water diversions, agricultural return flows, flood control activities, and channelization projects could potentially alter flows in the nearby Gila River, which would affect both aquatic and terrestrial species and their habitats. In addition, recreational activities including hiking, hunting, picnicking, birding, horseback riding, primitive camping, off-highway vehicle driving, geocaching, would continue and may increase. Increase in recreation may have additive impacts to the species and their habitats.

Past, present, and reasonably foreseeable actions within the analysis area would continue to influence range resources, watershed conditions and trends.

4.6 Cumulative Impacts of the Proposed Action and the Alternatives

4.7 Proposed Action

The proposed action would aid in the continuation of meeting or progressing towards meeting range health standards and provides forage for multiple users while ensuring habitat for wildlife species. Improvements in this watershed would reduce soil erosion, increase soil stability, increase water infiltration, and maintain or improve upland areas with. This in turn would improve habitat and forage for livestock and wildlife.

The cumulative effect by implementing the proposed action would be nominal to this area compared to other larger influencing to the resources such as mining operations, roads and recreation that occur in the geographical area.

4.8 No Action Alternative

Future activities from livestock grazing, mining, recreation, and road maintenance would continue to slightly impact the soils within the impact assessment area. Impacts to soils and vegetation from grazing are likely to become static or decline from present resource conditions.

4.9 No Grazing Alternative

Current impacts resulting from grazing, recreation, mining and other activities on private and State lands, would continue within and around federal land. Any reductions in authorized AUMs on BLM lands would increase grazing pressure on private and state land which is adjacent to federal land and could cause impacts to federal land. Cumulative effects under the no grazing alternative could potential include gradual increase in perennial plants diversity, cover vigor and production over long term. Annual species would increase initially and then as the health, diversity, vigor, and production of the perennial vegetation would presumably increase.

5.0 Consultation and Coordination

5.1 Compliance and Monitoring

Dry weight ranking (DWR) studies would be used to measure attainment of the key area DPC objectives. In addition, pace frequency studies would be used at each key area to detect changes

of individual species which determines a trend or change in vegetation composition. Pace frequency and DWR would be completed on each key area every 3-6 years. DWR and pace frequency study methods are described in *Sampling Vegetation Attributes*, Interagency Technical Reference 1734-4 (1996).

5.2 Persons/Agencies Consulted:

Safford Field Office:

Archaeologist, Dan McGrew
Natural Resource Specialist, Jeff Conn
Fisheries Biologist, Heidi Blasius
Geologist, Larry Thrasher
Realty Specialist, Roberta Lopez
Hydrologist, William Wells
Socioeconomic/ Environmental Justice, Tim Goodman
Rangeland Management Specialist, Gwen Dominguez
Assistant Field Manager and NEPA Specialist, Joe David

Standard and Guidelines Interdisciplinary Team

Lone Star Permittee
Interested Parties

6.0 References

- Arizona Game and Fish Department. 2000. Pima Indian Mallow, *Abutilon parishii*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 6 pp.
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7.0 Appendix 1: Arizona Standards & Guides Evaluation

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Arizona Standards and Guidelines Evaluation Lone Star Allotment, #46130

1.0 Introduction

The Allotment Assessment was conducted in accordance with the direction set forth in the Washington Office Instruction Memorandum No. 98-91 and Arizona No. 99-012 for implementation of Standards for Rangeland Health and Guidelines for Grazing Administration. The purpose of the standards and guidelines is to improve the health of the public rangelands. The standards and guidelines are intended to help the Bureau, rangeland users and others focus on a common understanding of acceptable resource conditions and work together to achieve that vision. The Arizona State Director approved the Decision Record for implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration Environmental Assessment in April 1997. This decision became effective upon approval of the Arizona standards and guidelines by the Secretary of Interior in April 1997. The Decision Record allowed for full implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration in all Arizona Bureau of Land Management (BLM) Land Use Plans.

Definition of Standards and Guidelines:

Standards of rangeland health are expressions of levels of physical and biological conditions or degree of function required for healthy, sustainable rangelands and defines minimum resource conditions that must be achieved and maintained. Determination of rangeland health is based upon conformance with the standards. Application of the standard to the range site considers the potential of the site without regard for the types or levels of use or management actions or decisions.

Guidelines, on the other hand, do consider type and level of grazing use. Guidelines for grazing management are types of methods and practices determined to be appropriate to ensure the standards can be met or that significant progress can be made toward meeting the standard. Guidelines are tools that help managers and permittees achieve standards. Guidelines are specific to livestock grazing. Guidelines are best management practices such as grazing systems that could be used to achieve rangeland health standards.

Although the process of developing standards and guidelines applies to grazing administration, present rangeland health is the result of the interaction of many factors in addition to grazing livestock. Other contributing factors may include, but are not limited to, past land uses, land use restrictions, recreation, wildlife, rights-of-way, wild horses and burros, mining, fire, weather, and insects and disease (Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, 1997).

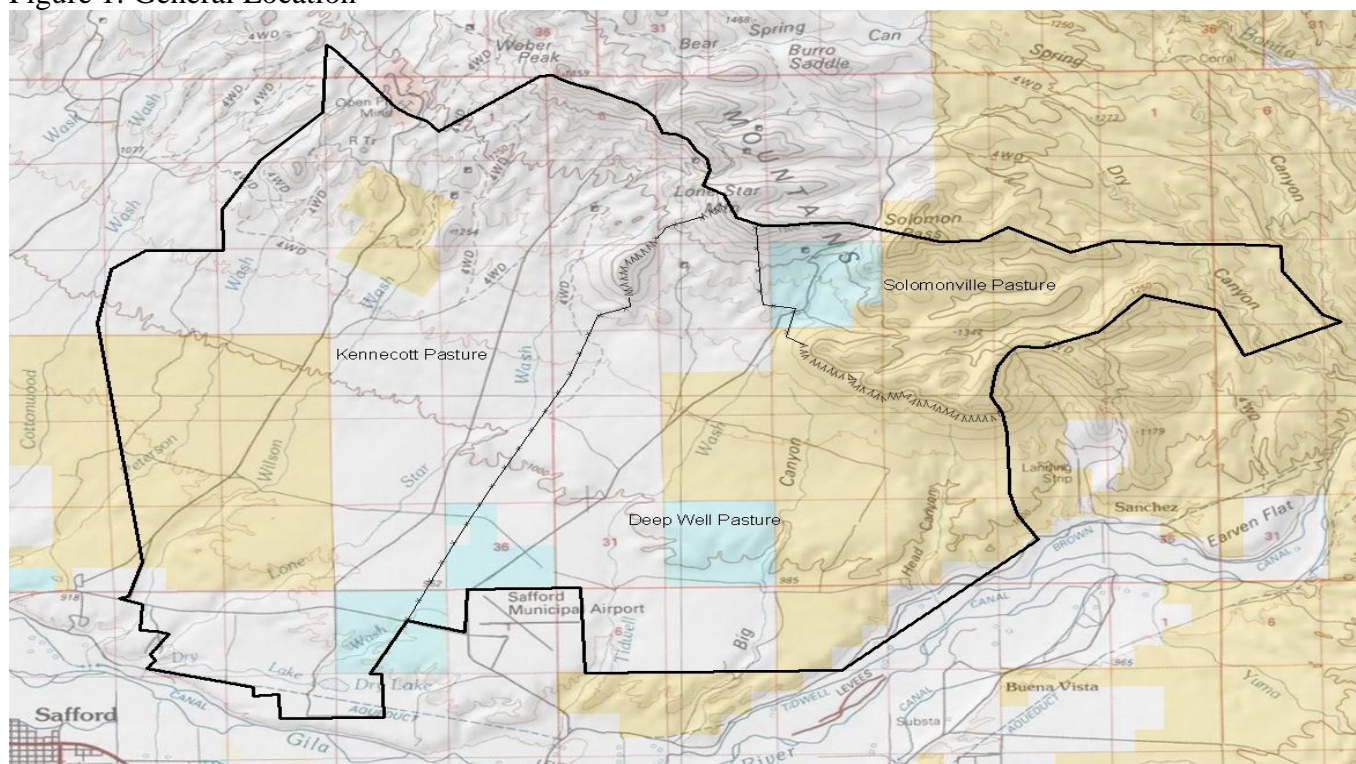
With the commitment of BLM to ecosystem and interdisciplinary resource management, the standards for rangeland health as developed in this current process will be incorporated into management goals and objectives. The standards and guidelines for rangeland health for grazing

administration, however, are not the only considerations in resolving resource issues (Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, 1997).

2.0 General Description of Evaluation Area

The Lone Star Allotment is located 1.5 miles northeast of Safford, next to the Safford Airport. It is bordered on the south by the Gila River and extends northward to the top of the Gila Mountains. Elevations on the allotment rise from 3,000 feet near the river up to 6,100 feet on Weber Peak on the north boundary. The allotment consists of gently sloping river terraces and a narrow band of steep mountainous terrain lies along the north edge. Figure 1 shows the location and ownership of the Lone Star allotment

Figure 1: General Location



Lone Star Allotment #4613



3.0 Grazing Use

3.1 Grazing History

Report average license use on the allotment from 1972-1976 was 1840 AUMs. The grazing EIS estimated the grazing capacity to be 1175 AUMs. In 1980 the number of AUMs on public land was 1,525 and supplement license where granted every year to handle carry over calves but numbers varied year to year. January 21, 1981 grazing decision was issued for a reduction of cattle from 144 CYLs to 110 CYLs initially over a 3 year period and later decided to be done over a 5 year period. On January 17, 1986 a grazing decision was issued stating that the third phase of the reduction planned to take place in 1985 to the 100 CYLs was not necessary because monitoring studies indicated no change was need, therefore the permit was issued for 127 CYLs at 69% public land for 1052 AUMs. The most recent grazing decision was in December of 2005 where there was land exchange and reduced the percent of public land to 57% cattle numbers stayed the same at 127 head which equals 869 AUMs.

3.2 Current Grazing Management

The lower elevation of this allotment known as the Deep Well and Kennecott pasture, although classified as perennial range its use is managed to occur seasonally when an abundance of annuals are present. The lower elevation of this allotment has little perennial forage because of the soils, rainfall and ecological sites present. The ecological sites in these pastures are a mosaic of limy upland, where perennials are limited in the plant community and loamy upland that supports more perennial grasses at the same rainfall amounts. The permittee uses these pastures only when it receives normal to above normal spring or winter rainfall that produce an abundance of annual forbs and grasses. This grazing scheduled is how the permittee manages the allotment.

The Solomonville pasture has perennial forage because of it different soils, rainfall and ecological sites.

3.3 Actual Use

Actual use data for livestock was determined through Actual Use Reports, Form 4130-5, when available or from past billing statements. Refer to Table 1 for actual use from the previous 10-years.

Table 1 Actual Use

	Preference (AUMs)	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002
Lone Star	869	0*	0*	0*	0*	238	238	0*	0*	0*	0*	0*

*Voluntary Non-Use

The permittee holds a lease with the private land owner, Freeport McMoran, within the allotment boundary. At times of the highest mining activity the permittee has been asked to remove cattle

from the allotment to facilitate mining activities. The permittee is also proactive in managing their cattle numbers during times of drought and other conditions that arise.

3.4 Terms and Conditions of the Permit

Allotment	Livestock number	Kind	Grazing Period Begin End	%PL	Type Use	AUMS
46130	127	Cattle	3/1 2/28	57	Active	869

4.0 Evaluation Area Profile

4.1 Land Status

The Lone Star allotment is identified as an Maintain category (M-category) allotment. Category M allotments are where land health standards are met or where livestock grazing on public land is not a significant causal factor for not meeting the standards and current livestock management is in conformance with guidelines developed by the State Directors in consultation with Resource Advisory Councils. Refer to Table 2 for land acreage on the Lone Star allotment.

Table 2: Lone Star Ownership by Acres

Type of Acreage	Acres
Public Land	12,244
Private Land	18,293
State Land	2,320
Total	32,857

4.2 Soils and Ecological Sites

Soils:

Limpla-Graham-Rock outcrop complex, 9 to 50 percent slopes. This map unit is on mountains. Elevation is 3,500 to 5,200 feet. This unit is 45 percent Limpia extremely cobbly clay loam, 20 percent Graham extremely cobbly silty clay loam, and 15 percent Rock outcrop. The Limpia soil is dominantly on the lower two-thirds of the mountainsides, and the Graham soil is dominantly on the mountaintops and the upper one-third of the mountainsides. Rock outcrop is on the mountaintops and is scattered throughout the unit. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used. Included in this unit are small areas of Atascosa very gravelly clay loam on hillsides, Santo Tomas very cobbly loam along drainageways, Peloncillo cobbly clay loam on fan terraces, and Tapco cobbly clay loam on fan terraces. Also included are areas of talus on the steeper hillsides below the areas of Rock outcrop. Included areas make up about 20 percent of the total acreage. The percentage varies from one area to another. The Limpia soil is deep and well drained. It formed in colluvium derived dominantly from volcanic rock. Typically, 50 to 90 percent of the surface is covered with cobbles and a few stones. The surface layer is brown, mildly alkaline extremely cobbly clay

loam about 2 inches thick. The subsoil to a depth of 60 inches or more is reddish brown, brown, and dark reddish gray, mildly alkaline clay that is more than 35 percent coarse fragments. Permeability of the Limpia soil is slow. Available water capacity is medium. Water supplying capacity is 8 to 10 inches. Effective rooting depth is 60 inches or more. Observed rooting depth is 35 to 40 inches. Runoff is medium, and the hazard of water erosion is moderate. The Graham soil is very shallow and shallow and is well drained. It formed in colluvium derived dominantly from volcanic rock. Typically, 30 to 80 percent of the surface is covered with cobbles and a few stones. The surface layer is brown, neutral extremely cobbly silty clay loam about 1 inch thick. The subsoil is mildly alkaline, dark reddish gray silty clay and reddish brown clay about 15 inches thick over basalt. Depth to basalt ranges from 8 to 20 inches. Permeability of the Graham soil is slow. Available water capacity is low. Water supplying capacity is 6 to 10 inches. Effective and observed rooting depth is 8 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate. Rock outcrop consists of areas of exposed basalt. Most areas of this unit are used as rangeland and for wildlife habitat and recreation. If the range vegetation on this unit is in good or excellent condition, the native grasses are mainly tobosa, sideoats grama, cane bluestem, and Arizona cottontop on the Limpia soil and black grama, sideoats grama, and cane bluestem on the Graham soil. Cattle usually avoid areas of this unit unless their movement is restricted by fences. If livestock are restricted to this unit, they tend to graze the less sloping areas, leaving the more steeply sloping areas essentially ungrazed. Suitable range management practices are fencing, implementing planned grazing systems, and developing livestock watering facilities.

Anthony gravelly sandy loam, 0 to 5% slopes. This soil occurs on alluvial fans and terraces above the inner valley and on flood plains of tributaries of the Gila River. The surface layer is mainly gravelly sandy loam but is sandy loam in some places. Except that 10 to 30% of the surface layer is gravel and slopes area as much as 5%, this soil is similar to Anthony sandy loam, 0 to 2% slopes. The surface layer ranges from 4 to 10 inches in thickness. The soil is neutral to moderately alkaline and in some places is slightly calcareous. The surface is smooth to undulating. This soil is used for desert range, wildlife and water supply. Few forage plants grow, but annual grasses, weeds, mesquite, and saltbush provide seasonal grazing.

Graham extremely rocky clay loam, 2 to 40% slopes. About 5 to 60% of this mapping unit is Graham cobbly clay loam, and 40 to 50% is rock outcrops and talus or sloping mounds of rock debris at the foot of step outcrops. The rock outcrops and talus are on the steep side slopes and craggy tops of the Gila Mountains and shallow Graham cobbly clay loam is on the less sloping parts of the mountain between the outcrops. Permeability of this soil is moderately slow to slow, and runoff is medium to rapid. The available moisture holding capacity is very low. Root penetration is limited by the bedrock, but in places where the bedrock is fractured the roots penetrate into cracks to a depth of 24 to 36 inches. The organic content is moderately low, and natural fertility is medium to high. If plant cover is maintained there is little or no hazard of soil blowing or water erosion. This soil is used for desert range, wildlife, and water supply, for which it is well suited.

Continental cobbly sandy loam, 2 to 5% slopes. About 55% of this complex is Continental soil; 25 to 30%, Pinaleno soil; and 15 to 20% included soils. The Continental soil has a profile similar to the profile described for the Continental soil in Continental- Gila gravelly sandy loams, 0 to

5% slopes. A representative profile for a Pinaleno soil is described for Pinaleno gravelly loam 0 to 5% slopes. The Continental soil in this complex is on terraces and low ridges of terraces above the inner valley. The Pinaleno soil is on the ridges and alluvial fans on the terraces. Included with this complex in mapping were areas of Bitter Spring, Arizo, and Cave soils and of Rough Broken land. The soils of this complex are used for desert range, wildlife and water supply. The natural vegetation provides some grazing. It consists mainly of wolfberry, snakeweed, mesquite, cholla and annual grasses and weeds, but some tobosa grows in swales and creosote bush on fans and in steeper areas.

Major Land Resources Area:

Rangeland landscapes are divided into ecological sites for the purposes of inventory, evaluation, and management. An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. It is the product of all the environmental factors responsible for its development, and it has a set of key characteristics (soils, hydrology, and vegetation) that are included in the ecological site description (Inventory and Monitoring, Technical Reference 1734-7). BLM uses rangeland health assessment to provide information on the functioning of ecological processes relative to the reference state for the ecological site or other functionally similar unit for that land area.

The Natural Resource Conservation Service (NRCS) characterizes land resource regions by particular patterns of soils, climate, water resources and land uses. These large regions are then grouped into Major Land Resource Areas (MLRAs). The most prevalent in MLRA 41-2 (8-12 inch p.z) on the Lone Star Allotment, the most northern boundary shares the characteristics closer to 41-3. MLRAs are then broken down further into ecological sites, which are associated units of soil and vegetation with quantifiable characteristics. The ecological sites occurring on the Lone Star allotment are: Basalt Hills 41-2, Clay Loam Upland 41-2, Loamy Uplands 41-2, and Limy Upland 41-2.

Vegetation:

Clay loam upland sites the native potential plant community on this site is a mixture of perennial grasses and desert shrubs and cacti. Both winter and summer seasons are very important in the plant community in their respective (wet) seasons for annual forbs and grasses. Tobosa is the dominant perennial grass, with lesser amounts of gramas and three-awns. The cover of some shallow rooted grass species, like curly mesquite, fluctuates widely from wet to dry years

Loamy upland sites the native potential plant community on this site is a mixture of perennial grasses, desert shrubs and cacti. Annual forbs and grasses, that are produced in the winter and summer seasons that receive average to more than average precipitation, are very important in the plant community. Tobosa, black grama and bush muhly are the dominant perennial grasses, with lesser amounts of three-awns. The cover of some shallow rooted grass species, like curly mesquite and Rothrock grama fluctuate widely from wet to dry years.

Limy upland the Historic Climax Plant Community is dominated by creosote bush. Annual grasses and forbs are an important part of the plant community in wet seasons. Perennial grasses and forbs are minor components in the potential plant community. Cryptogams are common on this site, often colonizing areas with low gravel covers.

Basalt hills the native potential plant community on this site is a mixture of desert trees, shrubs, succulents and perennial and annual forbs and grasses. Shrubs like creosote bush dominate the plant community. Annuals, of both winter and summer types, are very important in their respective seasons in wet years. Perennial grasses fluctuate from 1-2% after prolonged drought to 20% of the plant community during favorable rainfall years.

4.3 Climate

Climate data was collected from the PRISM Climate Mapping Program. PRISM (Parameter-elevation Regressions on Independent Slopes Model) is an analytical tool that uses point data, a digital elevation model, and other spatial data sets to generate fine scale (4-km, 2.5 arc-minutes) grid-based estimates based estimates of monthly precipitation and temperature from 1895-present. The location from where the 4-km grid was set from is two different points to account for the changes in elevation on precipitation for the allotment.

Precipitation:

Precipitation ranges from 8-12 inches annually. More than half falls during Jul-Sep in brief, but often heavy, thunderstorms. The rest of the moisture comes as light rain or snow that falls slowly for a day or more, but rarely lasts more than a day. May and June are normally the driest months. Humidity is generally very low.

The PRISM data point (32.88 N 109.60 W) listed the average precipitation amount from January 1895 to December 2012 as 12.43 inches. The lower elevation average rainfall amount from the same time period is 9.39 inches (32.86 N 109.63 W)

Temperature:

Temperatures are mild throughout most of the year. Freezing temperatures are common at night Dec-Feb; brief 0 F may be observed some nights. During June, July & August, some days may exceed 100 F. The data collected from the PRISM program provides monthly temperature averages, which was then averaged by seasons Winter 43°F, Spring 58°F, Summer 78°F and Fall as 61°F (32.88 N 109.60 W).

4.4 Wildlife Resources/Special Status Species

The Lone Star Allotment has diverse geological forms, elevations, slopes, and vegetation. Resulting in a diversity of wildlife species from large mammals such as black bear, mule deer, javelina, bighorn sheep, golden eagles, coyote, bobcats, Kit fox, grey fox, mountain lion, Gambel quail and Scaled quail. Wildlife management emphasis in this area is on large game animals

specifically mule deer, white tailed deer, javelina and Rocky Mountain bighorn sheep. There are also various other reptiles, bats and other non-game species.

There are several ephemeral drainages (Head Canyon, Tidwell Wash, Big Canyon, Lone Star Wash, Wilson Wash, and Peterson Wash) which run through the Lone Star Allotment from the Gila Mountains to the Gila River. These drainages may be used as movement corridors for additional wildlife species including mule deer, mountain lion, and black bear.

Deer

Habitat degradation from excessive herbivory and drought can alter and / or eliminate cover and food needed by deer and other wildlife species. Perennial bunch grasses and low shrubs are required fawning habitat (*i.e.*, cover) for deer and offer concealment from predators. Adult animals also require cover for hiding and resting. Hiding or resting locations are selected to provide concealment, a view of the surrounding terrain, and easy access to escape routes.

Deer feed primarily on browse and forbs. Forbs are highly preferred and in spring and summer can comprise 20% to 40% of the annual diet; whereas browse can constitute between 40% to 70% of the diet in fall and winter. Deer are selective feeders and will choose the most succulent and nutritious shoots and grasses on which to feed. Diet largely depends on the ecoregion in which they live (Heffelfinger, *et al.*, 2006), in more productive habitats, such as woodland areas, a greater variety of food will be eaten than in desert areas.

Grazing at light to moderate levels has little impact on mule deer since browse and forbs constitute 90% of their diet with grass important only in early spring. Cattle consume primarily grass, with forbs and browse as secondary, but seasonally important components. Overgrazing results in livestock consuming more browse, which exacerbates the level and intensity of competition with deer. To reduce this impact livestock should not be allowed to browse more than 50% of the annual leaders growth (by weight), which equates to approximately 50% of the leaders browsed (Holechek and Galt, 2000).

Disappearance of springs, cienegas, and other natural waters in the southwest due to anthropogenic activities has negatively affected mule deer and other wildlife species (Heffelfinger, *et al.*, 2006). In addition, fragmentation of habitat by roads, farms, communities, etc. has reduced the ability of deer to access traditional water sources.

Deer inhabit the upper half of the allotment year round. The mix of vegetative species, vegetative structure and water distribution provides good habitat for deer. Deer use the drainages in the lower half of the allotment as movement corridors and may spend time seasonally in the lower half of the allotment when ephemeral forbs and grasses are available.

Javelina

Like deer, javelina, inhabit a variety of different habitat types throughout Arizona and are quite adaptable. Javelina are opportunistic feeders and require a diverse plant community comprised of flowers, fruits, nuts, grasses, forbs, shrubs, vines, succulents, and trees for survival. Prickly pear cactus comprises a major portion of their diet. A diverse and intact plant community not only provides forage, but much needed shelter and cover. Sonoran desert scrub and desert

grassland habitat are two of the most important biotic communities in Arizona for javelina and comprise approximately 67% of their range. Javelinas do not inhabit pure grasslands, but grasslands that have been invaded by shrubs and cacti. Riparian forests are also important and are used quite frequently by javelina as sources of water, food, and cover (Day 1985).

There are resident populations of javelina on the Tom Springs Allotment. They are more strongly associated with the diverse vegetation in the upper half of the allotment and the southern boundary of the allotment next to the farm field and the Gila River. The area in between is used seasonally when ephemeral vegetation is available.

Bighorn Sheep

Rocky Mountain bighorn sheep have been documented in the Gila Mountains along the northern end of the Lone Star Allotment. Important features of desert bighorn habitat are cliffs, rocky outcrops, and talus slopes which are used as escape terrain. Bighorn are closely associated with mixed cacti-mixed scrub on rocky slopes, mountain upland and rock outcrops. Due to their affinity for proximity to steep rocky terrain their habitat often has limited overlap with areas used by cattle.

Bighorn forage on grasses, shrubs and forbs, as well as on shoots and flowers of prickly pear, cholla cactus (*Opuntia* spp.) and other succulents (for example, barrel cactus, agaves). Browse becomes more important in the fall and winter and in the southern and western part of bighorn's range. Important browse species include acacias (*Acacia* spp.), mesquite (*Prosopis* spp.), fairy duster (*Calliandra eriophylla*), Mormon tea (*Ephedra* spp.), and desert mistletoe (*Phoradendron californicum*).

A few of the waters in the upper end of the allotment developed for livestock may also provide water for bighorns. .

Special Status Species

A query of the Heritage Database Management System, maintained by the Arizona Game and Fish Department, resulted in the following species being within five miles of the Lone Star allotment, see Table 3.

Table 3. Special Status Species Occurrences and Critical Habitat within five miles of the Lonestar allotment.

NAME	COMMON NAME	FWS	BLM	STATE
<i>Abutilon parishii</i>	Pima Indian Mallow	SC	S	SR
<i>Agosia chrysogaster</i>	Longfin Dace	SC	S	
<i>Aquila chrysaetos</i>	Golden Eagle			
<i>Bat Colony</i>				
<i>Bufo microscaphus</i>	Arizona Toad	SC		
<i>Buteogallus anthracinus</i>	Common Black-Hawk			WSC
<i>Catostomus clarki</i>	Desert Sucker	SC	S	
<i>Catostomus insignis</i>	Sonora Sucker	SC	S	
<i>CH for Empidonax traillii extimus</i>	Designated Critical Habitat for southwestern willow flycatcher			

NAME	COMMON NAME	FWS	BLM	STATE
<i>CH for Xyrauchen texanus</i>	Designated Critical Habitat for razorback sucker			
<i>Coccyzus americanus occidentalis</i>	Western Yellow-billed Cuckoo	C		WSC
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	LE		WSC
<i>Gila intermedia</i>	Gila Chub	LE		WSC
<i>Macrotus californicus</i>	California Leaf-nosed Bat SC	SC		WSC
<i>Myotis yumanensis</i>	Yuma Myotis	SC		
<i>Poeciliopsis occidentalis</i>	Gila Topminnow	LE		WSC
<i>Rana yavapaiensis</i>	Lowland Leopard Frog	SC		WSC
<i>Rhinichthys osculus</i>	Speckled Dace	SC	S	

FWS = U.S. Fish and Wildlife Service

BLM = Bureau of Land Management

C = Candidate

T = Threatened

E = Endangered

S = Sensitive

SR = State Restricted

WSC = Wildlife Species of Concern

The southwestern willow flycatcher (*Empidonax traillii extimus*) was listed as federally endangered on February 27, 1995 (Vol. 60, No. 38, 10693-10715). It is a riparian obligate species. They prefer dense canopy cover, a large volume of foliage, and surface water during midsummer. They appear to avoid riparian areas found in steep, closed canyons. The flycatcher is very threatened throughout its range due to riparian habitat loss and fragmentation and brood-parasitism by the brown-headed cowbird. Other factors include diversion of water, draining of wetlands, channelization and levying of streambeds, construction of canals, drains and impoundments, livestock grazing, off-road vehicles, and the cutting of woodlands. Another possible threat is the invasion of riparian habitats by exotic tamarisk (AZGF 2002).

Critical habitat is within approximately 0.5 miles of the Lone Star allotment, and cattle congregation areas can have the potential to increase brown-headed cowbird populations which could negatively affect southwestern willow flycatcher nest success, due to brood parasitism. There are five dirt tanks, within three miles of southwestern willow flycatcher critical habitat, which hold water ephemerally. As stated in the 2012, Programmatic Biological Opinion for the Safford and Tucson Field Offices' Livestock Grazing Program, Southeastern Arizona, 22410-2006-F-0414:

To reduce the likelihood of nest abandonment and loss of flycatcher productivity owing to cowbird parasitism associated with BLM-authorized grazing activities in or near occupied habitats, BLM will implement the following:

Investigate, identify, and assess livestock concentration areas on BLM in the action areas that are likely foraging areas for cowbirds. This will be done within a five-mile radius of occupied or unsurveyed suitable southwestern willow flycatcher habitat. The BLM will evaluate ways to reduce any concentration areas found. The BLM will pay special attention to those facilities within two miles of breeding habitat, since this is the range in which alteration of concentration areas are most effective.

The BLM is currently developing a plan to evaluate livestock concentration areas on BLM lands which may negatively affect southwest willow flycatcher and, if any are

identified, will work with the US Fish and Wildlife Service to determine potential management actions to reduce affects.

There is no habitat for the western yellow-billed cuckoo on the Lone Star allotment, potential habitat exists on private lands along the Gila River, approximately 0.5 miles from the allotment. Designated Critical Habitat for the razorback sucker is found along the Gila River, just south of the Lone Star Allotment. There are several ephemeral drainages (*i.e.*, Head Canyon, Big Canyon, Tidwell Wash, Lone Star Wash, Wilson Wash, and Peterson Wash) which run through the Lone Star Allotment from the Gila Mountains. These drainages used to connect directly to the Gila River; however, they are disconnected due to several man-made features including roads, canals, and agricultural fields, which prevent soil sedimentation from upland erosion from entering the Gila River. In addition, the presence of rock and gravel within the allotment also makes the uplands less prone to erosion.

Gila chub, Gila topminnow, desert pupfish, speckled dace, Sonora sucker, desert sucker, longfin dace, and lowland leopard frog occur in Bonita Creek, which is located approximately 1.5 miles due east of the eastern border of the Lone Star Allotment. There are no drainages from the Lone Star Allotment into Bonita Creek and therefore there are no anticipated impacts to these species from livestock management on the Lone Star allotment.

The Yuma myotis roosts in buildings, under bridges, and in caves and mines. The California leaf-nosed bat roosts in abandoned mines and rock shelters during the day and will roost at night in open buildings, bridges, and mines. Grazing is not likely to impact these species. Recreationists entering roosts, especially maternity roosts, have the potential to negatively impact these species.

The Pima Indian mallow is found in mesic situations in full sunlight within higher elevation Sonoran desertscrub on rocky hillsides, cliff bases, canyon bottoms, lower side slopes, and ledges of canyons among rocks and boulders. Slopes can exceed 45 degrees. In riparian zones, they occur on flat secondary terraces but typically not in canyon bottoms. They are often found near trails, probably due to their influence on the light, heat, and water of the micro-habitat. They like rocky substrate and lots of grasses and can be found higher on bajadas or lower in washes. Threats include: mining and related activities; trampling from recreators wandering off trails; livestock trampling and degradation due to overuse; and introduced species such as buffelgrass and thornberry (AZGF 2000). Given the low elevation of the Lone Star Allotment and limited potential mesic habitats, potential for Pima Indian mallow to occur would be limited to a few steep sloped areas along drainages which would generally be too steep for livestock to be present on. The BLM does not have any record of Pima Indian mallow occurring within the Lone Star Allotment, but this may be a reflection of limited surveys.

The golden eagle is susceptible to disturbance during the nesting period (February through April). The Golden Eagle's territory size in several areas of the western U.S. averaged 22-55 square miles (57-142 sq. km). They nest on rock ledges, cliffs or in large trees and may have several alternate nests and they may use the same nests in consecutive years or shift to alternate nest used in different years. In Arizona they are found in mountainous areas and are virtually vacant after breeding in some desert areas (Arizona Game and Fish Department, Heritage

Database Management System). There are no known nesting areas within the Lone Star Allotment, but there may be suitable nest sites near Bonita Creek and the Gila River which would not be affected by activities on the allotment.

An obligate riparian nester, the common black-hawk is dependent on mature, relatively undisturbed habitat supported by a permanent flowing stream. The greatest threat to the common black-hawk is alteration and elimination of riparian habitat through clearing, water diversion, damming, and lowering of the water table by underground pumping. At least 95% of the riparian habitat in the southwestern United States have been lost, altered, or degraded. They are vulnerable to disturbance and contamination of riparian prey species (AZGFD 2005). The Lone Star Allotment does not support any riparian habitat.

The Arizona toad inhabits rocky streams and requirements. Adults are nocturnal except during the breeding season which is from February through July and sometimes up until September. Arizona toads have been recorded in Bonita Creek, approximately 1.5 miles east of the Lone Star Allotment and have the potential to be along the Gila River, just south of the Lone Star Allotment. (AGFD 2002). There is no known habitat on the Lone Star Allotment itself.

The known bat colony in the area is on an adjacent allotment and would not be affected by normal activities on the Lone Star Allotment.

Habitat Management Plan:

The Lone Star Allotment falls within the 1980 Gila-Peloncillo Habitat Management Plan. There were no specific management objectives for the Lone Star Allotment identified in the Gila-Peloncillo Habitat Management Plan.

4.5 Special Management Areas

There are no special management areas within the Lone Star Allotment.

4.6 Recreation Resources

There are no developed recreation facilities in the allotment; however, dispersed recreation does occur. Dispersed recreation primarily involves small game hunting, target shooting and off-highway vehicle (OHV) operation.

4.7 Visual Resources

The Lone Star allotment is located within VRM Class III and IV designated areas. The objective of Class III is to partially retain the existing character of the landscape. The level of activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The objective of Class IV is to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. Every attempt should be made, however, to minimize the impact of these activities through careful location, minimal disturbance and repeating the basic elements.

4.8 Cultural Resources

Issuance of the permit constitutes a Federal Undertaking under Section 106 of the National Historic Preservation Act (NHPA). The Area of Potential Effect (APE) has been determined to be the public lands within the grazing allotment.

In compliance with the BLM Cultural Resources Programmatic Agreement, the Arizona BLM-SHPO Protocol, the 1980 Programmatic Memorandum of Agreement between the BLM, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Livestock Grazing and Range Improvement Program, and the BLM 8100 Manual series, the following actions have been taken to identify cultural resources located in the APE, evaluate the eligibility of cultural resources for listing in the National Register of Historic Places (NRHP), determine the effect of the undertaking on eligible cultural resources, and design mitigation measures or alternatives where appropriate.

The State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and Indian tribes having historical ties to Arizona public lands were consulted during the preparations of the Upper Gila/San Simon Grazing Environmental Impact Statement (9/78) and the Safford Resource Management Plan (8/91). Indian tribes were consulted at the beginning of the permit renewal process. There were no areas of Native American concern, Traditional Cultural Properties (TCP), or Sacred Sites identified during consultations.

Allotment case files, AMP files, range project files, Water Source Inventory files, and Cultural Resource files were reviewed to determine areas of livestock congregation and whether these areas have been previously inventoried for cultural resources. The records indicate that there are eighteen areas of livestock congregation that required an intensive field inventory, which was completed on 5-24-2009. Additionally 2,427 acres were surveyed, 1,562 at Class III, 1,516 acres BLM, 29 acres ASLD, and 17 acres was on private land. Eight hundred and sixty-five acres were surveyed at Class II, 592 acres BLM, and 273 acres on private land. Seven historic properties were identified in areas of livestock congregation; while grazing will have no adverse effects on these properties they are eligible for inclusion on the NRHP. To protect the cultural and historic values of the Sanchez Civilian Conservation Corps Camp (CCC) and its associated features, all property administered by BLM south of the base of the Gila Mountain Foothills, east of Tidwell Wash and Solomon Pass Road, north of the Gila River, and west of Head Canyon will be managed as though it is a Historic District on the National Register of Historic Places. Any new projects involving ground disturbance will have to avoid features associated with the CCC projects of the 1930's. Should these features be threatened by an undertaking, archaeological data recovery and monitor will have to be provided, and the SHPO will have to concur with the necessity of the project and its scientific findings.

As required by the Native American Graves Protection and Repatriation Act regulations at 43 CFR 10.4(g), the following should be added to the grazing lease/permit as a term and condition:

If in connection with allotment operations under this authorization, any human remains, funerary objects, sacred objects or objects of cultural patrimony as defined in the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3048; 25 U.S.C. 3001) are discovered, the permittee shall stop operations in the immediate area of the discovery, protect the remains and objects, and immediately notify the Authorized Officer of the discovery. The permittee shall continue to protect the immediate area of the discovery until notified by the Authorized Officer that operations may resume.

* Properties refer to archaeological sites, Traditional Cultural Properties, and Sacred Sites.

4.9 Noxious Weeds/Invasive Species

No listed noxious weeds are known to occur on the allotment there are two non-native invasive species that occur. However, species that increase under conditions such as drought and uncontrolled open range grazing as occurred until the late 1940. It is widely accepted that this was one of the factors setting in motion increased shrub production on rangelands in southeastern Arizona. Much of the shrub encroaching range land is now in a shrub dominated steady state that is difficult if not impossible to shift out of without extensive human manipulation.

4.10 Inventory and Monitoring Data and Methodology

All data was collected in accordance with "Sampling Vegetation Attributes, Interagency Technical Reference, 1996."

Composition:

Dry weight ranking (DWR) studies will be used to measure attainment of the key area desired plant community (DPC) objectives. In addition, pace frequency studies will be used at each key area to detect changes of individual species which determines a trend or change in vegetation composition. Pace frequency and DWR will be completed on each key area every 3-6 years.

Species composition data were collected using the Dry Weight Rank (DWR) methodology at each key area starting in 2006.

Ground cover:

Ground cover is the amount of surface area comprised of bare ground, perennial plant bases, litter, gravel or rocks. Ground cover data, each soil protection category expressed as a percentage of total hits, reflect the amount of litter, vegetative root bases, gravel and rocks available to intercept raindrop impact before reaching the soil and of bare ground exposed to climatic elements. Cover data were collected with each quadrat placement. A single point from the quadrat was consistently the focal point for cover category classification.

Ground cover data were collected at multiple key areas on the Lone Star allotment between 1976 through 2009. Refer to Appendix 1 for ground cover data. From 1979 to 2009 over the entire allotment as a whole trend appears to be a decrease in bare ground and a corresponding increase in litter and live vegetation hits. The data in key area LS-1a reveals a decrease in bare ground, in relation we also seen an increase in litter especially in 2006 which received at significant amount of spring precipitation. The increase in bare ground from 2006 to 2009 at LS-4 and LS-1a is due to lack of spring precipitation which helps annual plant species production on this allotment.

Frequency/Trend:

Pace frequency is the number of times a plant species is present within a given number of uniformly sized sample quadrats (plot frames placed repeatedly across a stand of vegetation). Plant frequency is expressed as percent presence for each species encountered within total number of quadrat placements, therefore, frequency reflects the probability of encountering a particular plant species within a specifically sized area (quadrat size) at any location within the key area. The total number of frequency hits among all species will not equal the total number of quadrat placements and frequency is insensitive to the size or number of individual plants. Frequency is a very useful monitoring method but does not express species composition, only species presence. Frequency is an index that integrates species' density and spatial patterns.

Pace frequency data was collected in 2006 for the first time and will serve as the baseline data. Frequency data for grass and forbs were collected as basal hits. Frequency data for shrubs were collected as canopy cover. Refer to Appendix 1 for frequency data.

4.11 Key Area/ Key Species

Key areas are indicator areas that reflect what is happening on a larger area as a result of on-the-ground management actions. A key area should be a representative sample of a large stratum, such as an ecological site, watershed area, pasture, wildlife habitat area, or herd management area. Key species are generally an important component of a plant community. Key species serve as indicators of change and may or may not be forage species. Refer to the monitoring section of this packet for locations of key areas on the allotment

Lone Star allotment has 3 key areas for monitoring long term trend: LS-1, LS-1a and LS-4. The allotment has an exclosure with monitoring points LS-7 and LS-7a that will be used as photo points.

Key Species:

LS-1/LS-1a: Perennial grass species: Tobosa (*Pluereaphis mutica*) Curly mesquite (*Hilaria belangeri*) Bush muhly (*Muhlenbergia porteri*) Black grama (*Bouteloua eripoda*), Three-awn (*Aristida* spp.).

LS-4: Perennial grass species: Bush muhly (*Muhlenbergia porteri*) Tobosa (*Pluereaphis mutica*) Black grama (*Bouteloua eripoda*).

4.12 Land Health Allotment Objectives

Standard 1: Upland Sites

Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform.

Standard 2: Riparian- Wetland Sites

Maintain or improve riparian/wetland areas to facilitate proper functioning condition.

Standard 3: Desired Resource Condition

Maintain or improve productive and diverse upland and riparian-wetland plant communities of native species.

5.0 Management Evaluation

5.1 Upland Health Assessment

Upland health assessments were completed at two key areas on the Lone Star allotment on January 15, 2009. These two key areas were used for the Upland Health Assessment, as they represent ecological sites over the majority of the allotment. This method involves observing a set of physical and biological attributes at a site to determine upland health. These observed attributes are placed in one of five categories depending on their degree of presence or absence on the site (i.e. None to Slight, Slight to Moderate, Moderate, Moderate to Extreme, and Extreme). These attributes include items such as: plant pedestalling, flow patterns, soil and litter movement by wind or water, presence of rills or active gullies. A final upland health determination is made by summing all of the attributes. Refer to Table 4 for a summary of the assessments on the Lone Star allotment. Methods for the upland health assessments are described in “Interpreting Indicators of Rangeland Health, Technical Reference 1734-6, 2000.”

Table 4. Summary of Upland Health Assessments

Pasture	Departure for Ecological Site Description				
	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Solomonville					S,H,B
Deep Well					S,H,B

S- Soil/Site stability H- Hydrologic function B- Biotic integrity

6.0 Conclusions

Based on the analyses and supporting documentation referenced herein, resource conditions on the Lone Star Allotment are as follows:

Site 1 Key Area LS-1/ LS-1a Clay Loam Upland (Solomonville Pasture)

- Standard 1. Upland Sites: Upland sites are achieve standard

Objective: Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform.

Rationale:

On January 15, 2009 a Rangeland Health Evaluation was completed on the allotment. The evaluation's preponderance of evidence indicated that there was a "None to Slight" rating for departure from the Ecological Site Description and Ecological Reference Areas. The site is a rocky area that will not likely be susceptible to erosion; therefore Soil/Site Stability was within normal parameters. Hydrologic Function was functioning at expected levels. Biotic Integrity is seen as stable but has a slightly higher succulent presence than desired.

- Standard 3 is being achieved for the Clay Loam Upland Ecological Site.

Objective: Maintain or improve productive and diverse upland and riparian-wetland plant communities of native species.

Site Objectives:

- Perennial Grass 50-70% Composition
 - Key Species
 - Tobosa (*Plueraphis mutica*) Curly mesquite (*Hilaria belangeri*) Bush muhly (*Muhlenhergia porteri*) Black grama (*Bouteloua eripoda*)
 - Other Species (lesser amounts)
 - Three-awn (*Aristida* spp.)
- Shrubs 5-20% Composition
 - Various Deseret Shrubs and Cacti
 - Mesquite (*Prosopis* spp), Creosote bush (*Larrea tridentata*), and Prickly pear cactus (*Optunia* spp)

Discussion:

The DPC objectives identify the vegetation attributes, such as composition, structure, and cover that are desired for multiple use values within the allotment. These include establishing vegetative characteristics necessary for soil protection, providing forage and habitat for livestock, wildlife, and T&E species.

The Desired Plant Community (DPC) objectives are specific to each ecological site. Monitoring data was analyzed along with information from the ecological site guides developed by the National Resource Conservations Service. The key area DPC objectives

are based on upon the site potential for change as indicated by. The DPC objectives are realistic in terms of what is possible to achieve.

Trend monitoring take in 2006 to 2009 shows little change in data in terms of frequency, further monitoring will be need to evaluate trend but at this point it seems to be static. Utilization data has not been collected in several years, historic data collection shows most of the allotment to have slight to light use with occasional moderate use around water sources. Utilization data will be collected when use is made on this allotment to insure the allotment it meeting objectives and standards. The Clay Loam upland ecological site within the upper pasture is currently within the Historic Climax Plant Community and DPC's have been set to maintain the current plant community.

The Lone Star allotment contains a small portion of basalt hills ecological site in this pasture it is mainly on state land; therefore no specific Desired Plant Community objects will be set for this ecological site.

Site 2 Key Area LS-4 Loamy Upland and Limy Upland (Deep Well Pasture)

- Standard 1. Upland sites is achieving standard

Objective: Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform.

Rationale:

On January 15, 2009 a Rangeland Health Evaluation was completed on the allotment. The evaluation's preponderance of evidence indicated that there was a "None to Slight" rating for departure from the NRCS Ecological Reference Area. The site is well covered with rocks and gravel, but has some evidence of soil displacement during rain event but Soil/Site Stability was within normal parameters. Due to the soil type and present vegetation litter amounts are low but would increase during wet spring/fall when annuals would produce forage. Hydrologic Function was functioning at expected levels; there was some evidence of pedestals and slight water flow patterns. Biotic integrity on this site is operating at normal conditions there is a slightly higher amount of sub-shrubs and succulents than desired but due to soil type potential for perennial grasses are low in this pasture. The monitoring date indicates a reduction in vegetation basal cover at this key area but do to the fact of drought for the past several years on this ephemeral range type it would be expected to decrease with the lack of moisture. This area also has been destocked for the past several years because of the lack of rain to produce and facilitate growth on the lower elevation lands in this allotment.

- Standard 3 is progressing towards achieving in the Deep Well Pasture.

Objective: Maintain or improve productive and diverse upland and riparian-wetland plant communities of native species.

Site Objectives:

Loamy Upland Ecological Site:

- Perennial Grass 50-55% Composition
 - Key Species
 - Bush muhly (*Muhlenbergia porteri*) Tobosa (*Pluchea mutica*) Black grama (*Bouteloua eriopoda*)
- Other Species (lesser amounts)
 - Three-awn (*Aristida* spp.)
- Shrubs 5-15% Composition
 - Various Desert Shrubs and Cacti
 - Mesquite (*Prosopis glandulosa*), Wolfberry (*Lycium* spp.), Catclaw acacia (*Acacia greggii*), Palo verde (*Parkinsonia* spp.)
 - Half Shrubs
 - Mormon Tea (*Ephedra viridis*)

Discussion:

Site specific or desired plant community (DPC) objectives were established based on data collected in 2006 and 2009, upland health assessments and ecological site guides. Objectives for DPC are to:

The loamy upland portion of this pasture is rated with in Historical Climax plant community state. This ecological site it not well represented with a monitoring site it occurs throughout the allotment in small bands intermixed with other ecological sites. It will continue to be managed to stay within the established DPC and to promote more diversity in perennial grass and keep shrubs at current levels for wildlife cover. This area is used seasonally when forage is available because it's within the same pastured and intermixed through limy uplands. Limy sites are best used seasonally naturally when an abundance of annuals are present after normal to above normal winter/spring rainfall occur.

Site specific or desired plant community (DPC) objectives were established based on data collected in 2006 and 2009. Objectives for DPC are to:

Limy Upland Ecological Site:

- Perennial Grass
 - Tobosa (*Pluchea mutica*)
 - Species represented in average-above average rainfall
 - Fluff grass (*Dasyochloa pulchella*), Three-awn (*Aristida* spp.), Bush Muhly (*Muhlenbergia porteri*)
- Annuals and Forbs
- Shrubs 12-20% Composition
 - Various Desert Shrubs and Cacti
 - Creosote (*Larrea tridentata*), Whithorn acacia (*Acacia*

- constricta*), Wolfberry (*Lycium spp.*)
- Various Half Shrubs 1-3%

When comparing trend monitoring data from 2006 and 2009 that data shows a static trend on this site with little fluctuation in species frequency or presence. The limy upland ecological site is within the expected Historic Climax Plant Community state and will be managed to stay within these parameters. In order to progress towards meeting our DPC the lower pasture will continue to be used seasonally when abundance of annuals are present.

7.0 Recommendations

Monitoring data and land health standards indicate that Lone Star is meeting all standards or making progress towards meeting. Upland health assessments and ecological site descriptions indicated that this area is performing at expected levels and therefore should continue to be managed in the same manor; in order to stay within set DPC's.

8.0 Consultation

Permittee(s), interested public, state agencies, and other federal agencies were initiated by a letter on February 25, 2009 with a public meeting invitation on March 25, 2009. On August 3, 2009 the Standards and Guidelines evaluations were sent to the interested parties and comments were received from Western Watersheds Projects. Evaluations were sent out again for comments on June 12, 2012. Comments were received from Western Watersheds Project.

Section 7 Consultation occurred on the Gila District Livestock Grazing Program Biological Opinion (BO) for the Safford/Tucson Field Offices' Livestock Grazing Program, Southeastern Arizona (22410-2006-F-0414).

9.0 Selected Management Action

The recommended adjustments to permitted livestock use and management practices will allow for continued achievement and significant progress towards achievement of Land Health Standards. This includes adjustments to permitted use, terms and conditions and management practices.

The following recommendations consider the principal purpose of protecting land health objectives on the Lone Star Allotment.

Permit: Mandatory terms and conditions

Allotment	Livestock number	Kind	Grazing Period		%PL	Type Use	AUMS
			Begin	End			
46130	127	Cattle	3/1	2/28	57	Active	869

Basic Schedule:

Allotment	Pasture	Livestock number	Kind	Grazing Period		%PL	Type Use	AUMS
				Begin	End			
46130	Solomonville	107	Cattle	11/01	4/30	57	Active	363
46130	Deep Well/ Kennecott	145	Cattle	5/01	10/31	57	Active	500

Authorized Officer Concurrence:

___ I concur with the conclusions and recommendations as written.

___ I do not concur.

___ I concur, but with the following modifications.

Scott C. Cook
Field Office Manager

Date

Appendix A: Key Locations and Data

Key Area GPS Locations

Site	GPS (NAD27 CONUS)
LS-1	12S 0633047 (E) 3640485(N)
LS-1a	12S 0633330(E) 3640669(N)
LS-4	12S 0631998(E) 3639510(N)

Site: LS-1a

Ground Cover	1976	1978	1980	1985	1988	2002	2006	2009
Bare Ground	45	25.5	30.5	30	34	9	3	8
Gravel	22.5	29.5	32	27	32.5	16	29	40
Rock	23	26.5	19.5	29	23.5	37	34	32
Litter	5.5	14	13	9	10.5	14	32	17
Vegetative Base	7	4.5	5	5	1	11	2	9
Total	100	100	100	100	100	87	100	106

Site: LS-4

Ground Cover	1976	1978	1980	1985	1988	2006	2009
Bare Ground	33.5	26.5	16	40.5	42.5	6	22
Gravel	13.5	12	16.5	7	12	43	42
Rock	28.5	28.5	33	39	38.5	28	25
Litter	19.5	27.5	33	11.5	7	21	8
Vegetative Base	5	5.5	1.5	1.5	0	2	3
Total	100	100	100	100	100	100	100

Site: LS-1

UA Cooperative Extension 2006 Data

Percent frequency		
		%
Perennial grasses		
Tobosa		81.0
Perennial forbs		
Trees and shrubs		
Prickly pear	Base	0.0
	Canopy	1.0
Hedgehog cactus	Base	0.0
	Canopy	1.0
Annual forbs		100.0
Annual grasses		99.0

Percent composition		
		%
Perennial grasses		
Tobosa		97.9
Perennial forbs		
Trees and shrubs		
Prickly pear		1.4
Hedgehog cactus		0.7

Other species present include: Globe mallow (*Sphaeralcea ambigua*), Snakeweed (*Gutierrezia sarothrae*), and Cholla spp (*Opuntia* spp.)

#Frames or points: Cover: 100
 Frequency: 100
 DWR: 100

Site: LS-1a (University of Arizona Cooperative Extension 2006 Data).

Percent frequency		
		%
Perennial grasses		
Tobosa		48.0
Black grama		3.0
Perennial forbs		0.0
Trees and shrubs		
Creosote	Base	0.0
	Canopy	14.0
Sotol	Base	0.0
	Canopy	1.0
Prickly pear	Base	1.0
	Canopy	4.0
Snakeweed	Base	1.0
	Canopy	0.0
Annual forbs		99.0
Annual grasses		99.0

Percent composition		
		%
Perennial grasses		
Tobosa		71.62
Black grama		3.31
Perennial forbs		0.0
Trees and shrubs		
Creosote		18.36
Sotol		1.00
Prickly pear		4.71
Snakeweed		1.00

Other species present: Mesquite spp. and Hedgehog cactus (*Echinocereus spp.*)

#Frames: Cover: 100
 Frequency: 100
 DWR: 100

Site: LS-1a (BLM Data, 2009).

Percent frequency	
	%
Perennial grasses	
Tobosa	60.0
3-Awn	2.0
Black grama	20.0
Perennial forbs	
Globe mallow	3.0
Trees and shrubs	
Creosote	12.0
Prickly pear	10.0
Snakeweed	1.0
Mormon tea	1.0
Annual forbs	6.0
Annual grasses	0.0

Percent composition	
	%
Perennial grasses	
Tobosa	55.8
3-Awn	1.1
Black grama	13.5
Perennial forbs	
Globe mallow	9.3
Trees and shrubs	
Creosote	9.5
Prickly pear	4.5
Snakeweed	0.3

#Frames: Cover: 100
 Frequency: 100
 DWR: 0

Site: LS-4 (University of Arizona Cooperative Extension Data, 2006).

Percent frequency			
			%
Perennial grasses			
Tobosa			10.0
Perennial forbs			
Evolvulus			1.0
Trees and shrubs			
Devil cholla	Base		0.0
	Canopy		2.0
Torrey wolfberry	Base		0.0
	Canopy		1.0
Arizona desert-thorn (Lycium)	Base		3.0
	Canopy		2.0
Annual forbs			100.0
Annual grasses			100.0

Percent composition			
			%
Perennial grasses			
Tobosa			62.67
Perennial forbs			0.0
Trees and shrubs			
Devil cholla			13.33
Torrey wolfberry			6.67
Arizona desert-thorn			17.33

Other species present: Globe mallow, Palo verde, Snakeweed, Creosote, Whitethorn acacia, and Mormon tea (*Ephedra spp.*)

#Frames: Cover: 100
 Frequency: 100
 DWR: 15

Site: LS-4 (BLM Data, 2009).

Percent frequency

	%
Perennial grasses	
Tobosa	10.0
Perennial forbs	
Globe mallow	3.0
Hog potato	1.0
Croton	1.0
Trees and shrubs	
Dog turd cholla	24.0
Mormon tea	1.0
Lycium	12.0
Palo verde	5.0
Mesquite	2.0
Annual forbs	11.0
Annual grasses	11.0

Percent composition

%

No DWR was taken on this site.

#Frames: Cover: 100
 Frequency: 100
 DWR: 0

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